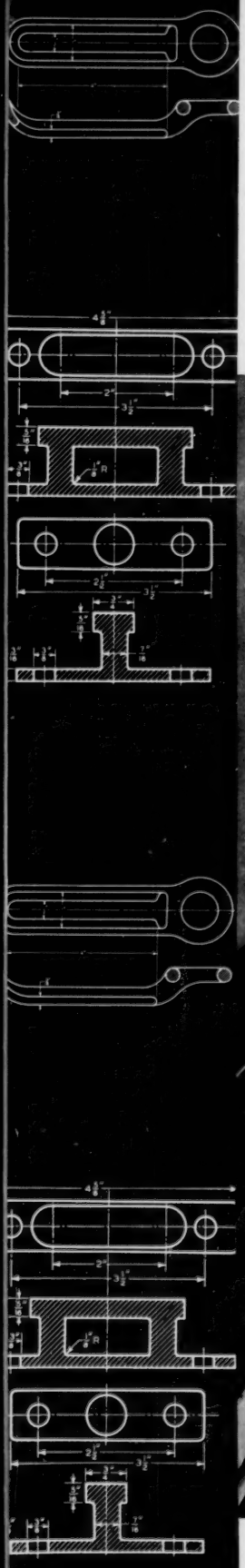

the magazine of STANDARDS

a life-saving standard . . . page 228

AUGUST, 1960

the magazine of STANDARDS

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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Ruth E. Mason, *Editor*
Margaret Lovely, *Art and Production Editor*

ASA

THE COVER: The lives of these window washers on the Empire State Building depend on the strength and reliability of their safety belts, the terminals which attach them to the anchors in the building, and the anchors themselves. Up-to-date recommendations for standard tests and performance of window washers' equipment are now available (page 228). *Photo: Parade Publications.*

notes

While admiring a great city's skyscrapers with their impressive expanse of glass, we often cannot help wondering, "How do they keep all those windows clean?"

Reports indicate that, since 1949, in some sections of the country the increasing construction of skyscrapers has been responsible for what amounts to 100 percent increase in the total number of window cleaners. Some buildings are so tall and use so much glass that window cleaners are employed for an entire 52-week period on just one building.

In this issue (page 228), an American Standard for the protection of window cleaners working on buildings more than one story high is described. The standard results from work done by 17 trade associations, technical societies, government agencies and labor unions.

In general, the call for any safety standard comes from employers who need well prepared standards as guides in preventing accidents, from labor unions, manufacturers of machinery and safety equipment whose products may have to comply with a variety of state requirements if nationally acceptable standards are not available, and from state departments charged with protection of workmen.

There are now some 170 American Safety Standards in many fields. The test of their effectiveness is whether they are used.

At present, the Bureau of Labor Standards is gathering information on what requirements the states are using to safeguard workmen, a survey recommended by the President's Conference on Occupational Safety. As a basis for comparison, it is referring to American Standard safety codes "because of their broad coverage, the representative methods by which they are formulated, and their widespread adoption throughout American industry."

Several state agencies have indicated that continued safety code analysis is valuable in their code revision work.

This Month's Standards Personality

Charles M. Parker

STEEL INDUSTRY EXECUTIVE CHARLES M. PARKER, widely known as author, administrator, and consultant, has been for years the American Iron and Steel Institute's leading figure concerned with steel standards. As assistant vice-president of the Institute, Mr Parker heads the AISI Division of Research and Technology, consisting of the Committee on Manufacturing Problems, the General Technical Committee, the Committee on Product Standards, and the Committee on General Research. Seven committees dealing with operating problems and 17 product technical committees also are included in the Division.

Member of a number of national and international technical and professional societies, and a registered professional engineer, Mr Parker is also active in work of the American Standards Association. He served the Institute on ASA's Standards Council for many years, first as alternate representative, and from 1945 to 1959 as full representative. He is a member of ASA's Mechanical Standards Board, and represents the Institute on the Sectional Committee on Nuclear Reactors, N6.

When Mr Parker joined the staff of the American Iron and Steel Institute in 1934, the Code of Fair Competition under the National Industrial Recovery Act was in effect. Mr Parker's first duties for the Institute were to work with the technical committee which had been established under the Code. The committee was charged with the duty of classifying and defining the products of the iron and steel industry, and describing the technical provisions surrounding their production and shipment for the benefit of producer and consumer alike. This technical committee grew into the Division which Mr Parker now heads.

Mr Parker has acted as special consultant to the Office of Procurement and Materiel USN, the Ordnance Department USA, and the British Raw Materials Mission. He has also served as technical consultant to the Division of Internal Security Affairs, U.S. Department of State; the Advisory Committee on Commercial Standards of the National Bureau of Standards; and the Division of Engineering and Industrial Research of the National Research Council. His most recent job for the government was as representative of the United States at meetings of the Steel Committee of the Economic Commission for Europe at Geneva in 1955.

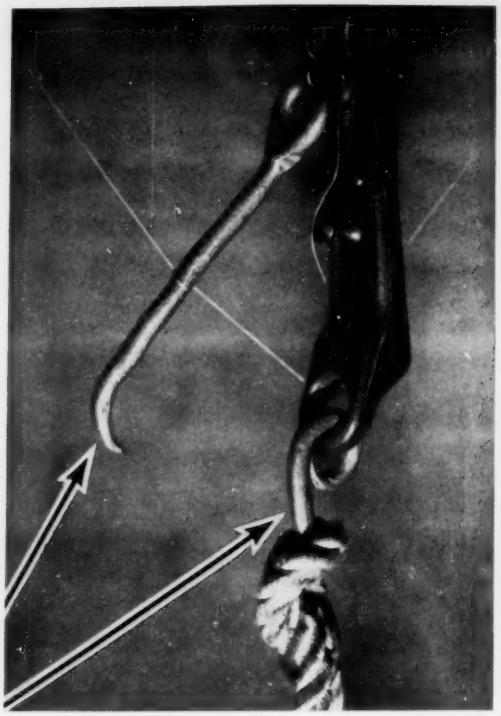
Mr Parker is author of many articles in trade and professional journals. His books include *Steel in Action*, 1943; *Selection of Steels*, 1945; and *The Metallurgy of Quality Steel*, 1946.

Mr Parker reports that he has no hobbies of the "do it yourself" category, but he does dabble in color photography, plays a bit of golf, and does some historical reading.

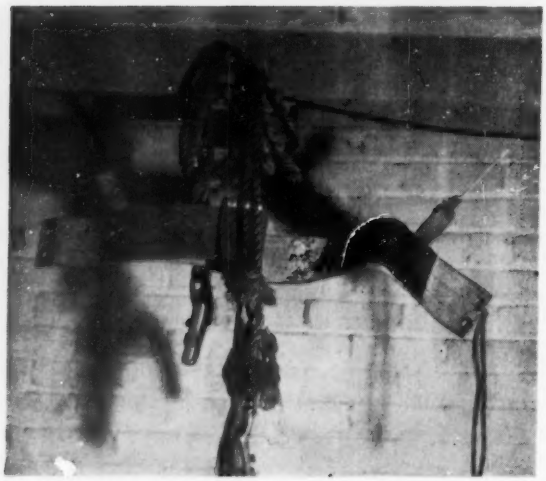
Copies of the American Standard Safety Code for Window Cleaning, A39.1-1959, can be obtained from the American Standards Association at $1.00 each.

A LIFE-SAVING STANDARD

by F. A. VAN ATTA



Arrows show how this popular type of terminal connector for a window washer's safety belt pulled apart when subjected to a moderate load. This was a new item when it was tested.



This "safety" belt offers a good argument for inspection of window washers' equipment, as well as for standards. The belt was pulled in two by hand. It would never have passed the standard tests.

ONE COULD PROPERLY ADD TO AN "amazing but true" collection of odd facts that idle curiosity about the deaths of glider pilots and passengers resulted in a new and improved safety code for window cleaning—but it did happen. The glider passengers were some of the shock troops of World War II, and the odd observation was that under apparently identical crash conditions some glider passengers would survive with little or no injury while the passengers of other gliders would be seriously injured or killed. Eventually it was observed that the difference in conditions was in the different gliders involved in the accidents. In one type of glider the seat belts were fastened to a single anchor behind the passenger; in the other type, the belts were fastened to two anchors at the sides of the seat. With the first type the man's abdomen was violently compressed, resulting in death, we learned later, from heart or liver injury or both.

It seemed to some of us at the National Safety Council that this might have a good deal of significance in connection with industrial safety belts which normally have only one point of support. Accordingly, we instituted a research program aimed at discovering the causes of these deaths and the conditions which should be set up for safety belts to prevent their occurrence in the future. This was a

F. A. VAN ATTA served as secretary of Sectional Committee A39 at the time the new edition of the American Standard Safety Code for Window Cleaning, A39.1-1959, was being prepared. At that time he was with the National Safety Council. Since then, Mr Van Atta has left the Council to become industrial hygienist in the Industrial Health and Safety Division of the International Union, United Automobiles, Aircraft and Agricultural Implement Workers of America—UAW.

successful project but is of interest here only because it led to a survey of accidents and injuries involving the use of safety belts and, among others, of injuries to window washers.

We were horrified in our preliminary survey to find that among members of the window washers union in one large city deaths by falling had been almost one per 100 members in the previous year. It turned out that this had been an exceptionally bad year and that the normal and expected rate was only about one death per 200 members per year. It also appeared that failure of equipment had been the cause of a very substantial number of these deaths, either because of inadequate design or because of inadequate maintenance of equipment which had been originally of good quality. This particular situation was dramatic but it was only an indication or symbol of a nationwide condition. Deaths and injuries among window washers were exceptionally high wherever it was possible to check them. When members of our committee began to look into individual instances we found such things as:

A window washer's belt in use which the committee member and his 100-pound secretary pulled apart by pulling on the body belt and terminals;

Several instances of 4-inch wide canvas webbing belts (breaking strength about 12,000 pounds) fastened at the waist by ties of ⅜-inch rope (breaking strength about 1,500 pounds for the two strands, reduced to about one-half by the knot if it were a very good knot) through ½-inch eyelets in the ends of the waistbelt;

A very honestly designed and built leather belt fastened to the terminals by the curled-over tapered end of a forged eye (it opened at 700 pounds);

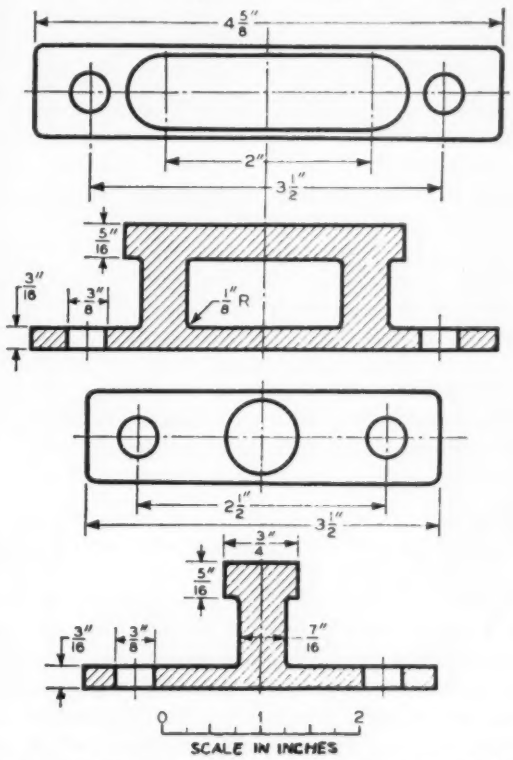
A variety of masonry-type anchors which various members of the committee were able to remove from the buildings with their fingers.

Since the National Safety Council was sponsor for the existing code (American Standard Safety Code for Window Cleaning, A39-1933) and several of the worst things which we had found wrong could be corrected by adherence to a properly worded code (and many by proper observation of the existing code), we took steps to reorganize Sectional Committee A39 under the procedure of the American Standards Association to try to update the code in line with modern knowledge and methods.

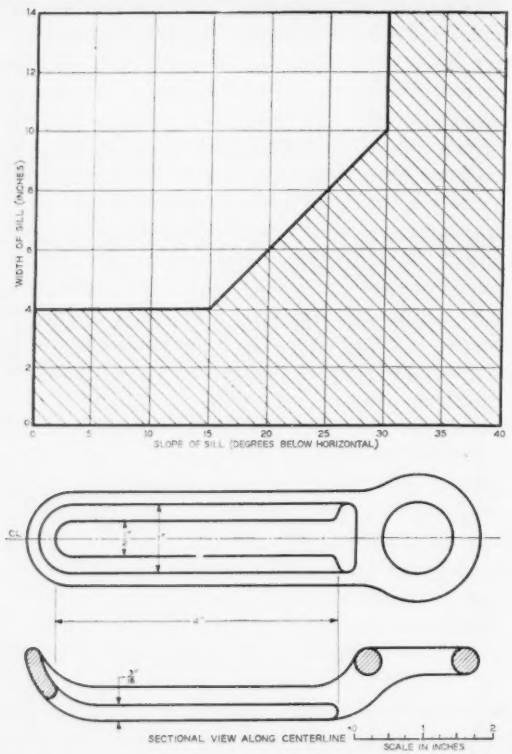
As a working principle, the committee agreed to aim at the production of a performance code which would specify the results to be obtained rather than the means to be used for obtaining those results. This principle could not be followed invariably in practice but, in general, we did obtain performance standards.

At the same time, the committee recognized that the large number of small firms in the business do not have the resources to do a great deal of research and development work and probably would appreciate the guidance of some specific rules. This is why, for example, in stating the requirements for anchors and anchor fittings, the code specifies first the physical properties which must be met in order to pass the specified approval tests and then provides examples of specific alloys, by ASTM and AISI designations, which have been shown to meet these requirements. The maker is not in any sense limited to these specific alloys if he can demonstrate to the satisfaction of the enforcing authorities that some other alloy has the required physical properties and that the finished anchor will pass the required tests for approval. The committee has attempted to adhere to this pattern throughout the code so that it will encourage, rather than stifle, progress.

The dimensions of anchor heads and belt terminals are examples of the type of problem where it is not possible to leave much room for ingenuity and imagination. Since it is absolutely essential that all terminals and anchors fit without reference to who manufactured them, it is necessary to specify the dimensions of the matching parts, which pretty well fixes their design. In one respect this code does relax the specifications for anchors as compared to the 1933 code. In 1933, double-head anchors were specified. They have not been universally adopted and the committee could find no evidence that the accident record with the single-head design was any worse



"Anchors shall be designed for attachment to window frames or mullions by two bolts to each anchor," says American Standard A39.1-1959. This drawing from the standard shows the belt anchor design.



Top diagram: If a vertical line from the slope value intersects in the unshaded area with a horizontal line from the sill width value, then it is safe to stand on the sill to wash the windows. Lower diagram: The design of a belt terminal.

than with the double head. There was a considerable indication that the working window washers preferred the single heads, so the design was made optional. Four-bolt fastening was specified at the same time, since 25 years experience had not shown any other way to prevent, with certainty, an anchor from turning around on its fastening. Also, through bolts were strongly recommended, although the option of installation with heavy machine screws was retained for cases where drilling some types of metal sash would work a real hardship on the builder. All types of masonry anchors were specifically excluded because of much bad experience with them.

THE METHOD of specifying the strength of belts is of considerable interest, since the only part for which a specific strength test is specified is the terminal. The other specification is for a drop test for the belt as a whole while suspended by one terminal. The specifications for this test are that the belt strap and terminal must support a weight of 350 pounds with only one terminal attached to a rigid anchor and the other hanging free. After the 350-pound weight has come to rest supported by the belt, it is to be lifted four feet vertically, and dropped. This requires that the whole belt assembly must dissipate 1400 foot pounds of energy without failure of any part of the assembly. There is no specification as to how this energy is to be dissipated. If the design is such that it is uniformly decelerated over a total distance of one inch it will be necessary for all components and the total belt to withstand an effective loading of 17,150 pounds. If, on the other hand, the design is such that the load can be uniformly decelerated over a 4-foot stretch, as by a non-elastic elongation of the terminal straps or ropes, it will be necessary for the individual parts and the assembly to withstand only an effective load of 700 pounds, the actual weight of the test object plus the one gravity deceleration. It is most probable that practical design will fall somewhere between these limits. Since it is probable that the anchors on the building will be the weakest link in the chain of support in many cases, and since it is also desirable that a man should not be subjected to a load of much more than 3,000 pounds in a waist belt, it is to be hoped that the designs which will be approved eventually will allow for at least three to four inches of stopping distance. This will call for strengths of 4,200 to 5,600 pounds in the belts. These are values which can be attained quite readily with currently available materials and which are in line with the requirements for anchors and terminals to make a properly integrated whole.

While the code is primarily concerned with the cleaning of windows from a position on the sill and with the protection of a standard window cleaner's belt and anchors, since this is the method used on a vast majority of public or industrial buildings, it must recognize also that there are situations where the cleaning must be done from ladders, swinging scaffolds, or boatswain's chairs. These methods are not recommended or encouraged since experience has shown that they are hazardous as compared to working with belts and anchors. Recommendations have been incorporated, however, to make them as safe as is possible where they must be used.

It should be recognized that the approval of the code under ASA procedure will have relatively little effect upon the actual safety of this peculiarly hazardous occupation unless the code is also adopted and used voluntarily by the companies engaged in window cleaning, and widely adopted and enforced by governmental agencies. There is nothing in it which is oppressive or difficult to comply with, but, because of the nature of the industry, it is going to be difficult to spread the information to the individual companies involved. A real effort to do so, through the suppliers of equipment and through the government bodies involved, can save a disproportionately large number of lives. It is particularly necessary that a real effort be made in inspection and maintenance in this business because the equipment on the buildings is necessarily exposed to the weather day and night for years, and even with the best of manufacture and installation it is bound to deteriorate if it is simply put in and forgotten, as is common practice.

Danger signs—color red—warn of specific hazards. Here it is the need to wear goggles while operating the machine. Signs alone do not assure safety, the author warns; in addition, hazards must be eliminated and a good safety program maintained.

Standard Signs Prevent Accidents

by L. W. HAGERUP

MR HAGERUP, chairman of Sectional Committee Z35, is second vice-president of the Lumbermen's Mutual Casualty Company, Chicago.

THE USE OF SIGNS has been regarded as an integral part of safety since the start of the safety movement. Early safety publications mention accident prevention signs and their use. While recognition of their value was apparent from the start, it was not until early in 1937 that the National Safety Council sponsored a project through the American Standards Association for definite standardized specifications for industrial signs.

A sectional committee of ASA was formed under the able leadership of Mark Bulot, then safety director for Stonehouse Signs, Incorporated, to study the problem of preparing specifications for the signs used by industry to prevent accidents.

Copies of American Standard Specifications for Accident Prevention Signs, Z35.1-1959, are available from the American Standards Association at $1.35.

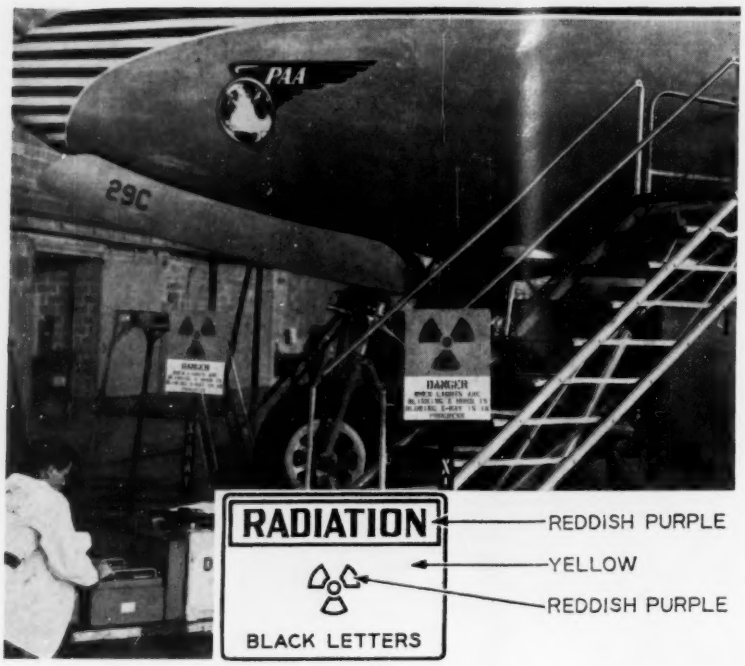
This committee soon realized that the specifications it was asked to prepare could not be written to cover all the various uses of signs in a broad sense. Such a procedure would only produce an unwieldy document that would be hard to understand, difficult to follow, and that would be likely through its own weight to defeat its purpose. Therefore, the committee decided to provide simple classifications to cover necessary sign groups so that uniformity of sign designs and colors for certain purposes could be maintanied.

The final result was five basic groupings:

Danger signs – Color Red – to warn of *specific* dangers only.

Caution signs – Color Yellow – to warn of possible dangers or possible unsafe practices.

Safety instruction signs – Color Green – to provide information relating to general safe practices.



Radiation warning signs are distinctively purple and yellow, in accordance with the recently approved American Standard Radiation Symbol, N2.1-1960.

photo: courtesy "Safety Maintenance," published by Alfred M. Best.

Directional signs – Color Black – to indicate the way to stairways, fire escapes, exits, and other locations.

Informational signs – may be in any of a variety of designs and colors except that neither red nor yellow shall be used. Messages of a general nature, such as rules, regulations, and markers which do not conflict with danger or caution purposes relate to this classification.

In 1941, the work of the ASA sectional committee on specifications for industrial accident prevention signs resulted in approval of American Standard Z35.1-1941. This code was reaffirmed in 1945.

A period of 12 years passed. It became apparent that re-examination of American Standard Z35.1-1941 was necessary. Technological improvements both in the manufacture and in the types of materials, along with new dangers concerning radiation, provided a start for a re-examination of this standard.

Helpful and constructive comments and suggestions were plentiful as the various drafts were prepared and distributed. It is indeed a tribute and a credit to the committee members that a final draft was ready and the new standard approved in November 1959.

Upon re-examination of the existing industrial accident prevention sign standard, it had been found desirable to expand the standard and include identification of and specifications for:

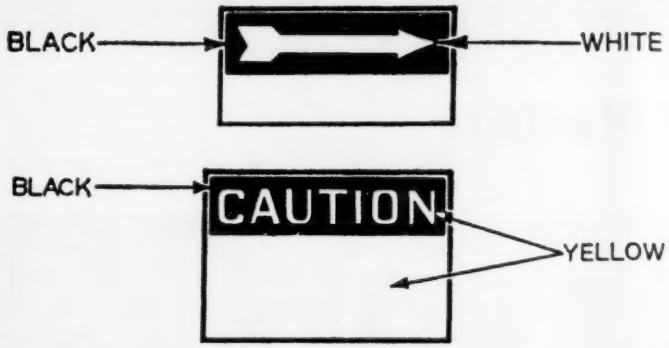
1. Radiation warning signs.
2. In-plant traffic signs.
3. Symbols.
4. "Do Not Start" tags.
5. Exit signs.

The radiation warning signs adopt standards set up under American Standard N2.1-1960 in which such signs are described, illustrated, and specified as to use. In-plant traffic signs were standardized and given specifications according to the uniform traffic code of American Standard D6.1-1955. Similarly, exit signs were redefined in accordance with American Standard A9.1-1953.

NO SMOKING!

EXPLOSIVES

Work on the "Do Not Start" tags resulted in a recommendation that the standard background color for these tags be red with letters printed in white or gray, or etched into metal provided a sharp and long-lasting contrast results. Placement of these tags was another important consideration. The committee recommended that each tag should effectively serve to block the starting mechanism wherever hazardous working conditions could result from accidentally energized equipment. While the code including "Do Not Start" tags has been approved, the committee of



Distinctive designs for each type of sign help employees recognize the sign's message quickly.

the American Standards Association will continue to function and will develop further particulars with regard to specifications on "Do Not Start" tags and other tags. Upon completion, this information will be recommended for addition to American Standard Z35.1-1959.

Within the revised code as prepared by the sectional committee are specifications regarding plastic signs, both as to flammability and design thickness. Additional specifications regarding aluminum have been provided, including contact of aluminum metals with other materials and recommended thicknesses for single-post center-line mounting and for two-post mounting. Preparation of the aluminum surface prior to application of paint and reflective sheeting have been outlined also to insure the best possible surface for use.

The opinion of the committee was that the wording of any sign should be easy to read and concise. It should contain sufficient information to be easily understood. The wording should afford a positive, rather than a negative suggestion, and should be accurate in fact. In connection with this, illustrations of messages to be displayed for the major categories of signs all have a positive statement as to what action the reader should take. The committee felt that, for maximum safety, reaction to signs should be automatic and it should not be necessary to stop, read, and analyze the meaning of each particular warning.

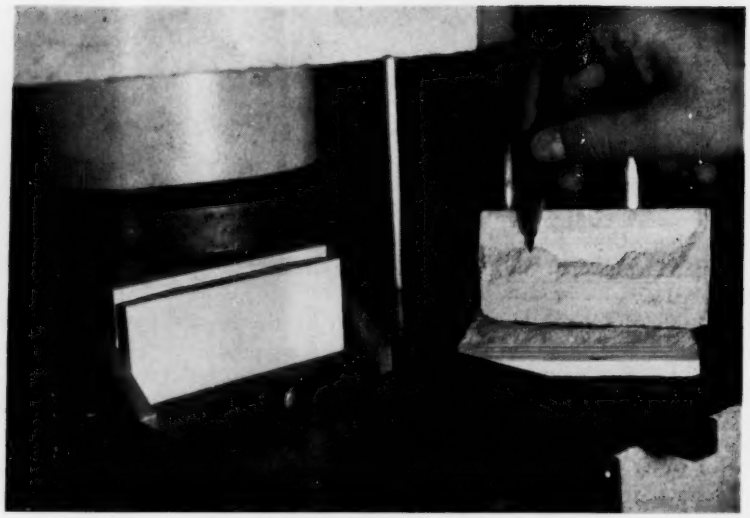
Sign uniformity is of great importance. Persons who cannot read English can learn to recognize and be warned by standard sign designs and colors. When signs of definite design and color for each specific purpose—to warn of particular hazards, to express caution, to provide general information, or to point out directions—are universally displayed, their use in accident prevention work becomes more effective.

Standardized accident prevention signs result in employees becoming familiar with the significance of designs and colors, regardless of where they work. Signs are truly recall symbols under such situations. This has tremendous value in accident prevention.

Uniformity is also important from the viewpoint of workers who are color-blind. Even though they may not be able to distinguish readily between colors, they are able to recognize the significance of familiar designs.

It should be clearly understood, however, that the signs are not to be considered the only steps to be taken against particular hazards. Whenever possible, the hazard should be eliminated. Safeguards should be used, although in many instances, even after safeguards have been installed, signs may be posted as an added precaution.

New Standard for Mortars Helps Ceramic Tile Industry



Wall tile shear sample in place on the testing machine. At the right of the picture is a similar sample showing a typical failure of the mortar to tile bond.

by Dr J. V. Fitzgerald

Research Director, Tile Council of America, Inc

BEFORE 1940, ALL CERAMIC TILE was set in Portland cement mortar. Since World War II, a substantial quantity of tile has been set by organic adhesives. As a matter of fact, the amount so set has increased continually during the ensuing 15 years. Nevertheless, the time-honored method, which is still extensively used, is the conventional or Portland cement method, often called the "mud" method in the vernacular. American Standard Specifications A108.1-1958, A108.2-1958, and A108.3-1958[1] cover the conventional method and are now in use throughout the United States. This article is concerned with a recent improvement in the "mud" method. It also describes American Standard A118.1-1959, which is a new standard for *dry-set* Portland cement mortar.

Hitherto, Portland cement mortars, in order to cure properly, have required the moist environment which tile setters provide by soaking ceramic wall tile and concrete, masonry, and other backings. In 1954, only research scientists would have been so bold as to predict that in a few years dry wall tile would be set in Portland cement mortars on dry cement block.

A notable achievement in tile technology has been the discovery, since that time, that after the addition of small percentages of polymeric compounds, Portland cement can be worked with water to form a superior mortar.

The new mortar is called "dry-set" because it has the capacity to retain water needed for curing the Portland cement even when in contact with dry absorbent surfaces. Water-retention capacity results from the greater viscosity of the mixing water when it has dissolved the polymeric additives. Another feature of the mortar is that adhesion or bond strength is increased over that obtained with straight Portland cement.

Dry-set Portland cement mortars have been ac-

[1] A108.1-1958, Specifications for Installation of Glazed Ceramic Wall Tile in Cement Mortars (Including Requirements of Related Divisions); A108.2-1958, Specifications for Installation of Ceramic Mosaic Tile in Cement Mortars (Including Requirements of Related Divisions); A108.3-1958, Specifications for Installation of Quarry Tile and Pavers in Cement Mortars (Including Requirements of Related Divisions). These American Standards are available in a single document at $1.50.

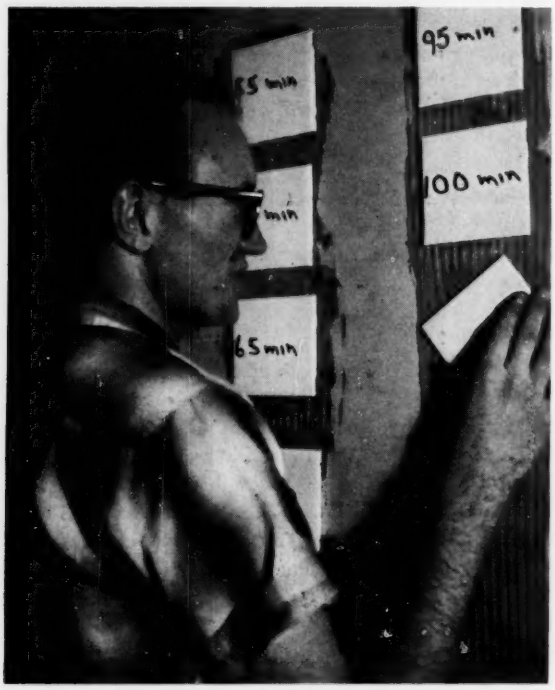
cepted widely by the tile trade. As a matter of fact, it has been estimated that more than 50,000,000 square feet of tile were installed with this material in 1959.

When a new product immediately becomes used on such a large scale in installations expected to perform satisfactorily for many decades, it becomes very important that the product be covered by a reliable standard. Therefore, American Standard A118.1-1959 has been prepared in order to provide specifications for the satisfactory performance of the product.

The requirements emphasize two aspects of performance. First, bond strength at various times under dry conditions and wet conditions is specified at high levels to insure long-time performance on the job. Second, good workability during setting of tile is defined in terms of such properties as initial and final set, open time, and adjustability.

The standard was submitted to the American Standards Association on May 5, 1959, under the Existing Standards Method. It was approved on December 16, 1959.

Origin of the standard itself goes back to an extensive study of organic adhesives started in the Tile Council of America Research Laboratory in 1956 with particular reference to Commercial Standard CS 181-52. Additional background for test procedures was derived from continuing research to develop grouts and mortars, started in 1952.



Open time test at 70 F, according to American Standard A118.1-1959, Specification for Dry-Set Portland Cement Motar. The tiles are applied to a mortar strip at 5-minute intervals until they no longer adhere. The time at which the last tile remains bonded to the wall is defined as open time.

Several companies had been licensed to manufacture dry-set mortar formulations developed by the Tile Council of America. The quality and composition standards prepared for those licensees also served as source material for American Standard A118.1-1959. In the meantime, a number of non-licensed manufacturers had begun to produce dry-set mortar for the tile trade. Because all of this material was used to set ceramic tile, and with the promotion of better use of tile as a prime objective, the Council believed very strongly that reliable standard tests and specifications should be available to everyone. Consequently, the Tile Council of America agreed to sponsor a standard and authorized the Research Center staff to prepare a series of generally acceptable test methods and specifications for submittal to ASA.

Early dry-set mortars suffered from certain deficiencies. One example was too rapid set encountered in hot climates, particularly in the Southwest. This was overcome by composition modifications and suitable laboratory tests to insure satisfactory field performance. Another problem was "skinning over," which was similarly solved. A test for open time (the time an adhesive can remain uncovered on the wall without becoming unusable) was found necessary. Mortars which allowed the tiles to slip down or sag were not satisfactory, of course. So a sag test with a suitable limit was developed. Many other tests, such as a test for the initial and final set, were adopted as needed. Eventually, a suitable combination of tests was compiled by which any testing laboratory could determine whether or not a mortar would perform satisfactorily in the field. This standard met with general acceptance, was submitted to ASA, and is now available as American Standard Specification for Dry-Set Portland Cement Mortar, A118.1-1959.

The standard defines dry-set mortars and gives various test procedures.

Dry-Set Mortar: A water-retentive Portland cement mortar, usable with or without sand, which eliminates the necessity of soaking either the tile or backing surfaces before installation.

Dry-Set Mortar Concentrate: A mortar composition enriched in the percentage of water-retentive ingredients and requiring dilution by a definite amount of Portland cement before use as a dry-set mortar.

American Standard A118.1-1959 requires 250 psi (pounds per square inch) shear bond strength of glazed ceramic wall tile to dry-set mortar after aging four weeks at room temperature. Typical dry-set mortars on the market frequently exceed this requirement by as much as 200 to 300 psi and even higher.

With approval and publication of the standard, the tile industry has now come into possession of a necessary safeguard.

American Standard A118.1-1959, Specifications for Dry-Set Portland Cement Mortar, published by the Tile Council of America, is now available at 50 cents per copy.

HOW TO MAKE A TIME-SERIES CHART

New standard gives principles and procedures for presenting time-series data effectively

by KENNETH W. HAEMER

TIME-SERIES CHARTS are a family of charts that economists, statisticians, financial analysts, and other technically trained but non-engineering specialists have been finding useful for a long time. In more recent years, engineers too have found this sort of chart more and more useful.

The time-series chart (or graph, if you prefer) is an historical record showing the course of events. Since we all must so often record and present events over a period of time, this chart is continually useful. Frequently time-series charts are useful also as a means of analysis and projection. Unlike scientific graphs, they do not present direct evidence of physical laws in action, but they are a valuable—and often necessary—adjunct to many scientific and semi-scientific endeavors.

An American Standard on time-series charts was originally published in 1938 and was reaffirmed ten years later. A revision, now approved as Y15.2-1960, was begun in 1949. Its original as well as its present purpose was to bring together in an organized manner the principles of time-series chart presentation, and to show the best current practice in carrying out these principles. The standard does not specify measurements or describe steps in physical processes or mechanical operations. It is a "procedural" standard in the sense that it provides detailed procedures for presenting time-series data effectively. Some of these procedures are the direct and logical outcome of the principles given; others are more or less arbitrary conventions that have become generally accepted.

This manual is divided into three main parts.

The first sets forth standard practices for designing line charts, which are the most widely used forms of time-series presentation. This largest part is divided into seven numbered sections:

Section 1. Layout and Design
Section 2. Grids
Section 3. Scale Selection
Section 4. Scale Designations
Section 5. Curves
Section 6. Curve Captions
Section 7. Chart Captions

The second part, Supplement A, discusses the other two principal forms of time-series charts:

Section 8. Time-series Column Charts
Section 9. Time-series Surface Charts

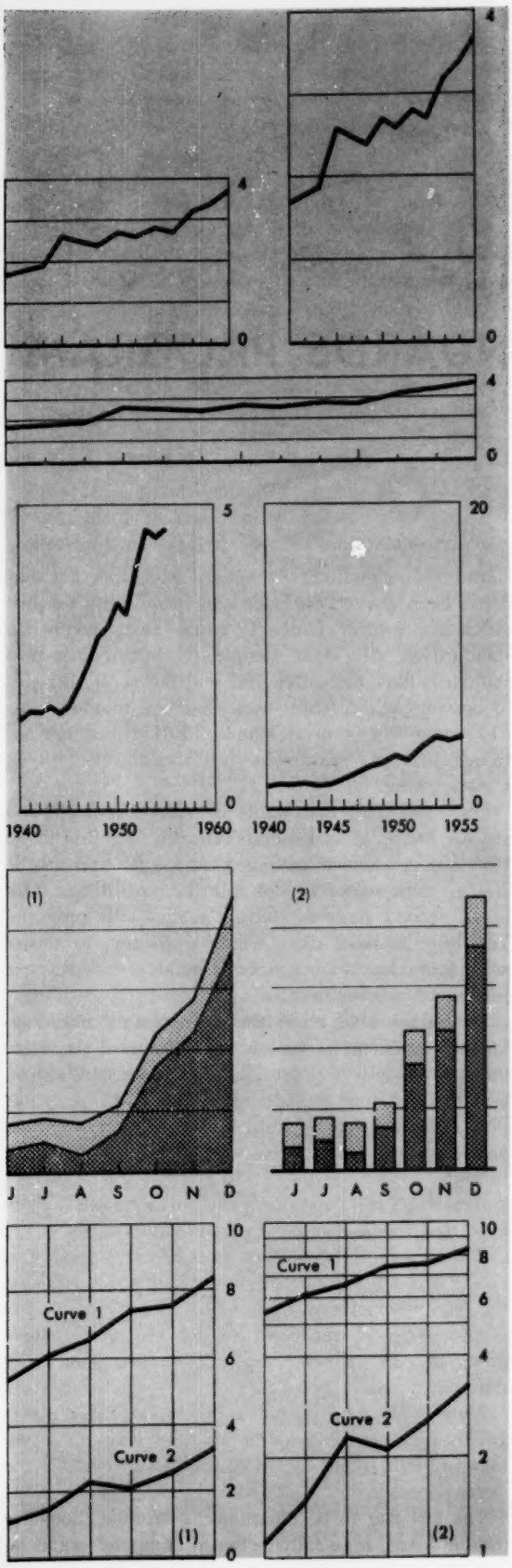
Since most of the standard practices for these forms are the same as for line charts, Sections 8 and 9 discuss them in a condensed form. These sections set forth a brief description of column and surface charts, list their major uses, and center attention on the procedures of design and construction that are different for those forms than for line charts.

The third main part of the manual, Supplement B, discusses the type of time-series line chart that has a logarithmic scale. Although these are line charts, their construction and use are sufficiently different from arithmetic-scale line charts to warrant discussion in a separate section.

An elementary but basic problem that concerned the authors of this standard was the question "What style of drawing is the most suitable for 'standard' time-series charts?" Should it be exactly the same as for engineering graphs? Or should it be closer to the heavier style used by the U.S. Department of Agriculture, or the more striking style used by the National Industrial Conference Board?

The reason why style is so important is that it can have such a strong influence on legibility, emphasis, fitness for the situation, and even on structural soundness. Every detail of design is a part of the chart's style. For example, the size and weight of the lettering as well as its "style" can make a considerable difference in the chart's appearance. Making any element of the chart bolder or weaker alters the distribution of emphasis to some extent.

MR HAEMER, chairman of Subcommittee 2 on Time-Series Charts of Sectional Committee Y15, is supervising Statistician, Methods and Presentation, American Telephone and Telegraph Company. Sectional Committee Y15, Preferred Practice for the Preparation of Graphs, Charts, and Other Technical Illustrations, is sponsored by The American Society of Mechanical Engineers. Copies of American Standard Time Series Charts, Y15.2-1960, are available at $3.50.



The consensus of those who prepared the drafts of Y15.2, reflecting general chart-making practice, was in favor of a simple, direct style without frills or flourishes, and the style of drawing used in Y15.2 is a careful attempt to fit this description. It is a bit less conservative than the style used in many technical publications, a bit more conservative than the style used in many trade journals. It is considerably more conservative than the styles used in many corporate annual reports.

THIS STYLE, with some alteration to fit local conditions, should be widely useful. Users should notice that it is a recommended, not a prescribed, style, and that for any given circumstance of use it may have to be changed. For example, many professional or commercial publications expect their local style practices to be followed or at least imitated. Also, certain situations, such as board meetings, sales conferences, training courses, lectures, may require some entirely different technique. Thus the drawings in Y15.2 are presented in a style that is adequate and acceptable when there are no set style requirements, and should therefore serve as satisfactory models for many situations in which time-series charts are needed.

Since Y15.2 is a standard that describes existing practices instead of prescribing new ones, it will some day need to be brought up to date again. Some of the procedures it recommends will gradually fall into disuse as styles and tastes change and as new or different uses for this type of chart develop. But that "some day" should not come for quite a few years: the principles, if they are truly principles, will change little, if any; the procedures have, properly, become more and more standardized and should change less in the next 20 years than in the past.

Of course, details of drawing style—size, weight, shading, color, typographic treatment—are subject to sudden vogues as well as to gradual changes. Also, novelty treatments such as the use of three-dimensional effects, diagonal perspective, and pictorial additions—which are now more frowned on than applauded by earnest, technical-minded users of time-series charts—may one day receive such widespread support that they, too, will have to be included in this standard. But if this sort of material were to be included, the "standard" would be out of date so quickly that it would probably need to be revised every four or five years. The other members of Sectional Committee Y15 and of Subcommittee 2 join me in the refrain, "Heaven forbid."

But since this standard—even within its present scope—must eventually be revised again, the committee invites suggestions for its improvement. Designers of time-series charts who put this standard to intelligent use will undoubtedly have recommendations which will increase the usefulness of the next revision. The committee sincerely welcomes such comments.

STARTING A STANDARDS PROGRAM

by ERNEST E. MOHR

THE STARTING POINT of any standards program is conviction—conviction that the development of standards is worthwhile. And the first person to convince is yourself.

It seems obvious that complete standardization of everything we do would be foolhardy and stifling. However, this is what a lot of people think is the ultimate goal of a standards program; therefore, they are against it. It seems equally obvious to me that to have no standards at all is just as foolhardy. The answer lies somewhere in between.

In a way, standards to a company are like habits to a person. Everyone has some things he does more or less automatically. In effect, he has standardized. Even if a person never does a particular thing the same way twice, he has, in a sense, accepted this method as his standard; he has established a standard without realizing it.

The problem of a standards program is not whether to have such a program at all, but only how far to go in order to realize the maximum benefit from it. My experience indicates that somewhere between 20 and 40 percent of all that is being done is standardizable; beyond that is the point of diminishing returns.

One help in convincing yourself is to understand that standards, again like habits, need to be changed every once in a while in order to remain good. Declaring that something is standard and expecting that it has been worked out once and for all with no provision for future change is worse than having no standard at all. Many people do not realize that standards have to be dynamic and not static in order to be worthwhile. These two ideas are fundamental: (1) some things need standardization but not all things; and (2) a standard is a dynamic thing, not a static thing.

Once you have thoroughly convinced yourself, you should be able to generate enough enthusiasm to convince someone in management to give you a little seed or faith money to look into the possibilities. This is the second stage in starting a standards program. You have to have time, which is money, to secure some tangible evidence right at home that will speak further to management.

If you are able to secure the necessary initial interest of someone in management, the third step is to make an analysis of potential areas where standardization would pay off in economy, quality, safety, or just plain old-fashioned helpfulness. There are certain flags or signs that signal areas ripe for standardization benefits.

Repetition is a good one. Look for items, acts, problems that repeat themselves frequently.

Dollar volume is another flag. Break expenditures down into some logical divisions and go to work on the ones where the most money is being spent.

Another good sign is where you see *many people doing the same general thing* in the same place or in different places.

Number volume is still another. Look for places where the same thing is done in many ways, or where many brands, types, or styles are being used for the same purpose.

The last flag to be mentioned is *trouble*. Look for trouble areas, especially between company organiza-

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MR MOHR is chemical engineering consultant, Engineering Division, Eastman Kodak Company. He presented this paper at the Spring Meeting of the ASA Company Member Conference which was held at Philadelphia, May 2 and 3, 1960.

This is the first in the series of articles on company standards introduced by Philip J. Callan in his article "Help Wanted" (page 207, July 1960).

tions. Don't forget that engineering standards apply to materials, parts, specifications, methods, practices, procedures, designs, design approaches, and are useful in the purchasing, stores, production, testing, and maintenance phases of the company, as well as the engineering phase.

Once you have decided on a promising area, you are ready to work on some standards. In the beginning, you might simply try to prepare a few high quality standards in any fashion that you can. These can be used as examples to convince others of the merits of a standards program. Above all, don't attempt to move too fast. You must have a firm foundation.

Hopefully, you have now convinced enough people in management of the value of standards so that you are ready to expand further. Now is the time to establish a great many policies which may have you ready for a padded cell before you get final agreement. Some of the decisions that will have to be made are: Where will the standards group be located in the company organization? How will future standards be developed? Whose approval of a proposed standard will be required? What is the policy on the use of the standards? How are we going to communicate the standards? And many others. Most of these things will depend upon factors peculiar to your own company situation.

You will also have to select some people to assist you in the program. For the people who are going to have a hand in developing the standards, there are three outstanding requirements:

(1) Diplomacy
(2) Open-mindedness
(3) Familiarity with the general technical areas in which standards are being developed.

Once under way, the company standards engineer has three balls which he will have to keep in the air continually for a sound standards program. If he drops any one of them, the program will suffer considerably. These three requirements are:

(1) Active support by management
(2) High quality of the standards produced
(3) Acceptance of the program and participation by users of the standards

Here are the factors that keep the balls in the air:

(1) Active support by management through
  (a) Recognition of the real and potential value of standards
  (b) Firm, but not absolute, insistence on their use

(2) High quality of the standards produced through
  (a) Utilization of the experience of many people
  (b) Exercise of sound judgment on how far to go
  (c) Incorporation of feed-back information from users
  (d) Constant review to keep up with changing situations
  (e) Constant investigation of the things that are new

(3) Acceptance of the program and participation of users of the standards through
  (a) The help they receive
  (b) A feeling that they have a responsibility to suggest improvements in the program
  (c) A feeling that they are free to acquaint themselves with the basis of any standard
  (d) Their willingness to accept standards for the common good

In starting a standards program, do not expect much result in less than two years. At the end of this time, the volume of standards which has been produced should be sufficient to enable some evaluation of the results. From this day on, one of the principal concerns of the company standards engineer will be, "How can I become more convincing that standards are worthwhile?" The more creative he is in answering this question, the more rapidly he will be able to provide a standards program which approaches the point of maximum benefit for his company.

Mr Mohr conducting the CMC workshop on starting a standards program

LEFT: Some of the delegates at the ISO Council meeting (counter-clockwise, from far right) Dr C. Rossi, Italy; J.D.H. Van der Toorn, J.M. Madsen, Netherlands; K. Heiberg, Norway; W. Plominski, J. Wodzicki, Poland; Prof Ing I. Miletineanu, Roumania; W. Kuert, W. Ruggaber, Switzerland; Miss Mockridge, H.A.R. Binney, UK; A.E. Viatkine, L.S. Povarennykh, USSR; Mrs N. Bally-Agapieff, Interpreter; K.D. Nikonoff, USSR; J.L.S. Meek, UK.

BELOW: ISO officers (left to right)— Jacques de Saugy, Switzerland, Treasurer; Vice Admiral G.F. Hussey, Jr, USA, Vice-President; Prof Dr E. Wegelius, Finland, President; Henry St Leger, General Secretary.

INTERNATIONAL WORK MOVES FORWARD

THE COUNCIL of the International Organization for Standardization met at Geneva, Switzerland, June 27-July 1, 1960, with the national standards bodies of all 14 countries that are Council members represented. Professor Doctor E. Wegelius of Finland, president of ISO, presided.[1]

Three new projects were approved by the Council — digital computers and data-processing machines; methods of static calculations of building construction; and steel roller chains and chain wheels.

The American Standards Association, the USA member-body, has been assigned the secretariat for the work on digital computers and data-processing machines, ISO/TC 97. A corresponding project on the electrical characteristics of these machines will be considered by the International Electrotechnical Commission at its meeting in New Delhi in November. Plans are being made for ISO and IEC jointly to convene a round table conference to which the international organizations concerned will be invited, as a first step toward coordinating world-wide work in this field. Such a conference will undoubtedly be held just prior to the first meeting of the ISO committee.

The Polish member body was assigned the secretariat for the work on static calculations of building construction, ISO/TC 98; and the United Kingdom has the secretariat for steel roller chains and chain wheels, ISO/TC 100.

There are now some 95 projects under ISO procedures.

Two new ISO Recommendations were approved at the meeting — ISO/R 160, Asbestos cement pressure pipes; and ISO/R 161, Pipes of plastic materials for the transport of fluids (external diameters and nominal pressures), Part I, Metric series. This brings the total number of ISO Recommendations to well over 150.

Changes in the secretariats of a number of technical committees were acted upon. The USA had relinquished the secretariat of ISO Technical Committee 26, Copper and copper alloys. This secretariat was

[1] Officers of ISO are Professor Doctor Wegelius, President; Vice Admiral G. F. Hussey, Jr, USN (Ret), managing director of the American Standards Association, Vice-President; M. J. de Saugy, commercial director, Société Genevoise d'Instruments de Physique, Geneva, Switzerland, Treasurer; Henry St. Leger, Geneva, General Secretary.

The members of the ISO Council are the national standards bodies of Austria, France, Germany, India, Israel, Italy, Netherlands, Norway, Poland, Roumania, Switzerland, United Kingdom, USA, USSR.

allotted to the German member body. Austria had given up the secretariat of ISO/TC 21, Fire-fighting equipment, which was assigned to the Netherlands member body. Norway having given up the secretariat of ISO/TC 63, Screw threads for glass containers and closures, this secretariat was given to the Czechoslovak member body. The secretariat of ISO/TC 67, Materials and equipment for the petroleum industry, was allotted to the Roumanian member body after having been relinquished by the UK.

The Council authorized the work originally under ISO/TC 55, Resinous lumber (sizing, defects), to be reorganized under three committees: ISO/TC 55, Hewn, sawn, and planed lumber, secretariat USSR; ISO/TC 99, semi-manufactures of timber, secretariat Roumania; and ISO/TC 89, Derived timber products, secretariat Germany.

The committee on agricultural products will now be known as ISO/TC 34, Agricultural food products, and will operate under the following scope: "To standardize products of agricultural origin used for human and for animal feeding purposes, including stimulants (including tea, coffee, spices), either in their natural, transformed, and/or processed form. To standardize propagation material for all these agricultural products."

ISO Technical Committee 83, Gymnastics and sports equipment, will work to standardize "the definitions, dimensions, tolerances, and functional characteristics for gymnastic apparatus and sports equipment for international competitions."

Official approval has been given the scope of ISO/TC 87, Cork, as "Standards concerning cork, taking into account both the raw material and products manufactured and prepared from cork."

The scope of ISO/TC 90, Apparatus for testing milk and milk products, was officially approved to cover "the dimensions of apparatus for testing milk and milk products, their details of construction, and their methods of calibration." The committee will work with other committees and international organizations in the field.

Terminology, methods of sampling, and methods of analysis of starch (including hydrolysis products and dextrines) and its by-products will be standardized by ISO/TC 93. The newly approved title of the committee is "Starch (including derivatives and by-products)."

The use of statistical methods in standardization work should be encouraged, according to a resolution adopted by the Council on recommendation of STACO (the Standing Committee for the Study of Scientific Principles of Standardization). Use of these methods applies particularly in the following cases, the resolution points out:

(*a*) in preparing dimensional series for products
(*b*) in establishing tolerances
(*c*) in establishing the numerical values of those properties which characterize the quality of the product or which are important for the safety of the user
(*d*) in devising methods of sampling and in drawing up acceptance rules.

A mathematical analysis of statistical material should always go side by side with its technical analysis and, if necessary, with its economic analysis, the resolution states. It is suggested that national standards organizations that do not have adequate facilities of their own for such analysis should establish or make use of an advisory body to assist them on matters concerning the application of statistical methods in standardization.

The policy outlined by STACO on use, wherever possible, of a single series of linear dimensions was adopted by the Council as the official policy of ISO. Although urging the use of a single system, this policy recognizes that, realistically, exceptions must be permitted in ISO Recommendations when they are justified. The policy was published in detail in THE MAGAZINE OF STANDARDS, September 1959, page 271.[2]

The STACO recommendation on the use of dimensionally invariant equations was also approved.

Recognizing the importance of maintaining its relations with the United Nations and the organizations that cooperate with it, the ISO Council acted to continue its representation at the UN headquarters in New York by reappointing Admiral Hussey, ASA managing director and ISO vice-president, as its liaison officer with the United Nations.

The next meeting of the Council will be in Helsinki, Finland, in the period June 5-16, 1961.

[2] On recommendation of the Standards Council, ASA's Board of Directors has adopted a policy for the guidance of U.S. delegates who are faced with the problem of how to handle the inch versus metric system at ISO meetings. This policy is based on the STACO recommendations, now approved as ISO policy. The policy adopted by ASA is available as an appendix to the "Standing Instructions for Delegates to Technical Committee Meetings of the ISO and IEC," issued by ASA as XX3142.

Left to right: Dr E. Levi, F. Hadass, Israel; Sir Jehangir Ghandy, Dr Lal C. Verman, India; Prof Dr A. Zinzen, Germany.

Reprinted from *Bureau of Ships Journal*, May 1960

Specification Rehabilitation

by J. F. CONDON
Machinery Division, Bureau of Ships

BEFORE THIS YEAR IS OVER, many of the purchase specifications used by the Bureau of Ships will have a "new look." The Bureau of Ships has initiated a specification rehabilitation program in which all Bureau of Ships MIL specifications and standard drawings will be overhauled in every respect necessary to obtain delivery of satisfactory material and equipment for the purpose intended at minimum over-all cost.

Plans and specifications have grown voluminous and complex because of the understandable effort to give the forces afloat the best and most reliable equipment in time of emergency. Every blunder in manufacture or inspection by a marginal supplier, or through a temporary lapse by a qualified supplier, has resulted in the Bureau's tightening up its specifications, thereby imposing more restrictions on products from *all* suppliers. As a result, the cost of our material and equipment from *all* suppliers, and of ships from *all* shipbuilders, has increased because of the poor quality control practices of the *few*.

The complexity and volume of requirements which result actually operate to defeat their purpose. As an example taken at random, the basic specification for an item, which is essentially commercial in nature, references 14 specifications and standards. The 14 specifications, in turn, refer to other specifications, and so on, until in this instance 335 specifications are needed to determine the requirements for the equipment.

A review of some of the 335 specifications discloses that the material and test requirements specified for various parts of the basic commercial equipment are greatly in excess of those necessary to obtain satisfactory equipment for the purpose intended.

Imagine the problems facing a manufacturer who wants to bid on this equipment. Before submitting a bid, he should review each referenced specification and determine the action he must take to meet the requirements or what exceptions he must take. The result is a hopelessly complicated task that discourages qualified bidders because of the burden of detailed investigations. Manufacturers who do quote must submit bids high enough to cover the cost of the investigations as well as the cost of the equipment.

A random check of other specifications indicates that this indiscriminate cross-referencing is the rule, not the exception. Therefore, in the rehabilitation program, the Bureau of Ships will eliminate indiscriminate reference to military specifications, federal specifications, and military standards.

Familiar Specifications

The rehabilitation program will eliminate other extravagances as well. Naturally, duplicate specifications will have to go. Widely recognized industry specifications will be referenced whenever possible. Both industry and the Navy will profit from the use of familiar specifications and standards.

When MIL material specifications for essentially commercial materials or equipment are prepared by the Bureau of Ships, they will parallel commercial specifications for equivalent material and the equivalent commercial specifications will be referenced in the title or scope. Requirements or tests different from those in commercial specifications will need complete justification.

Overspecifying

Overspecifying is also a common specification fault that will be discontinued. The modified specifications will reflect maximum austerity. Their major emphasis will be on simplicity, ruggedness, reliability, and reduced cost. New ideas that have not been thoroughly tested and proved to be sound from an engineering viewpoint will be avoided, as well as marginal improvements.

In the nonmilitary area, the trend toward more complicated gear with more remote and automatic features will stop. Any proposed change in specification requirements will be carefully weighed to determine whether the theoretical gain in over-all ship efficiency warrants the cost and complexity that may result.

Repair Parts

Shipboard repair parts are another area where costs can be reduced without affecting the quality of the material. By including definitive repair parts lists in each purchase specification (except for developmental items) economy in cost and manhours will result. When the lists are included, the parts can be procured on a competitive basis, and the Navy is not a captive customer in the hands of the equipment supplier.

Separate procurement of repair parts also increases the cost to the manufacturer who must pass along the increase to the purchaser. Unless the lists are included with the purchase specification, normally he cannot combine shop and suborders for the basic assembly, since, in order to meet delivery requirements, he must start placing orders for the repair parts with those for the basic equipment as soon as he gets release.

Other Simplification Areas

It is not necessary that all equipment be mechanically shockproof so long as the omission of this requirement will create no hazard and the ship can return to the base for repairs. Mechanical shock specifications for equipment will be applied judiciously with due regard to ship employment and the nature of the equipment.

Drawings, Tests, Inspections

The specification requirements on detailed drawings, tests, and inspections can be greatly reduced. The specification will require that drawing submittals provide only the information necessary to determine that the equipment complies with the purchase specifications, that it can be satisfactorily installed on board ship without the vendor's assistance, and that it will be suitable for continued satisfactory operation under all possible environmental conditions.

Drawings and technical manuals will be restricted to those necessary to assist men on board ship and in shore facilities to install, operate, maintain, and repair the equipment and to obtain proper repair parts.

Navy inspection at the source will be reduced to that necessary to verify the supplier's continued compliance with the quality-assurance provisions of the specification.

These areas of effort are not all inclusive. BuShips engineers will give each specification its own individual thorough analysis. The comprehensiveness required of a specification is directly related to the reliance that the purchaser can place on the supplier's knowing the requirements and applying that knowledge to the design, manufacture, and test of the equipment.

It is hoped that the proposed simplicity of the rewritten purchase specifications will bring a greater degree of understanding, encourage more freedom in bidding, and bidding by more suppliers, thus giving the Navy a wider choice of materials and equipment.

Are These Cases Work Injuries?

This is the thirty-third installment in the current series of rulings as to whether unusual industrial injury cases are to be counted as "work injuries" under the provisions of American Standard Method of Recording and Measuring Work Injury Experience, Z16.1-1954 (Reaffirmed 1959). The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply. Decisions on unusual industrial injury cases are issued periodically by the Z16 Committee on Interpretations.

Sectional Committee Z16 is sponsored by the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

INDEX TO CASES 400-700. An index to Cases 400-700 has now been completed. Arranged numerically by the number of the applicable paragraph of American Standard Z16.1-1954 (R1959), the index includes the number of the case indexed and a key letter indicating what the decision was in each case. Each index reference includes a brief description of the case.

Reprints of Cases 400-700, with the index, are now available from ASA at $2.25. Discounts for quantity orders may be obtained on request.

CASE 792 (1.6 and 5.3)

An employee was walking in a normal manner when his foot slipped backwards possibly three inches, and on his next step he could not put his weight on his foot. There was no pain associated with it except when he tried to put weight on his foot in the process of walking. He could fully bend his knee, but full extension was impossible. An x-ray revealed an obstruction of cartilage, and ensuing corrective surgery resulted in lost time. The injured man could not remember any previous injury to his knee, and there was no unsafe act on his part. No hazard existed other than snow patches.

Decision: The injury described should be considered a work injury, and should be included in the work injury rates according to the ultimate extent of disability on the basis that the employee's slipping on a snow patch either caused the injury or aggravated a previous condition which required surgery and lost time.

CASE 793 (5.13)

On Tuesday, an employee at a small plant fell a short distance and struck his head in the fall. He suffered a slight scalp cut and bruised elbows and back. He was sent to a physician, who dressed the scalp wound and instructed the man, because of the head wound, to go home and take it easy until Thursday morning when he should report back to the doctor. On Thursday morning the man reported back to the physician, who examined him and told him that the blow to the head had not been serious and he could report back to work immediately. The man did so, having been under observation for about 36 hours.

The company pointed out that in many

communities hospitals were inaccessible, and a doctor could easy tell a man to go home and keep quiet for a day, which would be the best he could do under the circumstances. The company questioned the absolute necessity for hospitalization in order for a case to meet the requirements for not being charged.

Decision: This injury should be considered a lost-time injury and included in the rates in accordance with the ultimate extent of disability. The wording of paragraph 5.13 specifically includes the word "hospital," and the committee agreed that this paragraph is limited to hospitalization within a hospital.

CASE 794 (5.12)

A truck driver had just stepped out of his truck, and was walking down the alley in a residential area. While there was a good deal of snow on the ground, there was no visible evidence that unusual care should be taken since the terrain of the alley was smooth. All at once his right foot dropped into a hole approximately 16 in. in diameter, and 4 ft deep. Later investigation showed that small weeds around the hole had been pressed smooth over the opening by the snow, thus giving a uniform, smooth appearance with no visible evidence of any hazard. The weeds, being over the top of the hole, had kept it from being filled with snow.

The injury resulted in time being lost. The company felt it unjust to count the injury due to the external events involved, it being beyond the control of the employer or employee to anticipate or even recognize the existence of a "booby trap."

Decision: This injury should be considered a work injury and included in the rates. The case is covered by paragraph 1.6, and paragraph 5.12 was not intended to cover situations such as described.

CASE 795 (5.6)

Some of the operations in the compounding section of the grease and compounding department were shut down to facilitate the taking of a physical inventory, and the employees affected by the shutdown were assigned other work. Two packagers were assigned a housekeeping detail in the vicinity of the can-filling machine on which they were normally assigned. A fork truck was standing idle in the same area with the motor shut off, the operator of the fork truck having been assigned a temporary job on the dock, and the remainder of the can-filling crew temporarily assigned duties elsewhere.

The two packagers absented themselves from their jobs, and one of them, not a fork truck operator, and having no authority to operate a fork truck, took possession of the vehicle by getting in the driver's seat, started the motor, and took a joy ride around the room. He then proceeded to show his fellow worker, who did not know how to operate a fork truck, how to do so. The fellow worker got in the driver's seat, and the other employee sat on top of the motor housing with his legs hanging over the side. From this position he coached the fellow worker, showing him how to operate the shifts and controls of the truck. In the course of this ride they attempted to pass through a doorway about twice as wide as the truck, and the employee sitting on the truck with his legs hanging over the side had his foot squeezed between the truck and door frame. He sustained soft tissue damage with resultant swelling and skin inflammation, so that he had to be absent from work since he was unable to wear a shoe or use his foot.

The grease and compounding department has a formal training program which must be completed before any employee is assigned to a position of fork truck operator. Neither of the packagers had received instructions in the operation of the fork truck, and were not authorized to drive or use the truck in any part of the performance of their assigned duties.

Decision: The injury sustained should be considered a work injury and included in the work injury rates. The fact that the employee engaged in a prohibited activity and failed to devote himself continuously to his work was not sufficient grounds for excluding the injury from the record. This employee's action appeared similar to a case of showing off or horseplay, specifically covered in paragraph 5.6.

CASE 796

Facts unclear—no official decision.

CASE 797 (1.2.4)

A well puller in the producing department of an oil company was working in the derrick, adjusting the sliding board. He knelt with his left knee on the working platform and his right foot on the finger to move the sliding board outward. He felt pain in his back, but stated that the sliding board was neither stuck nor in other than normal condition. He did not feel it was necessary to see a doctor until two days later, at which time he was examined. X-rays were taken and the man was given heat treatment. He returned to his regular work without losing time from the job, but because a possible arthritic condition was detected from the x-rays, the employee consulted an orthopedic surgeon.

In order to visit the orthopedic surgeon, the employee lost one day from work in travel, after which he returned to his regular duties and did not lose any more time from work.

Because the man's one day of absence from his work was not due to any physical disability, as evidenced by the fact that he had remained at his regular work for 11 days prior to going to the orthopedic surgeon, and had then returned immediately after and remained on regular duty, the company did not believe that this day of lost time should be included in the work injury rates.

Decision: This injury should be included in the work injury rates as a temporary total disability. There seemed to be no question that the employee had received an injury arising out of and in the course of his employment, and the only question appeared to be whether the loss of a day from work to visit a doctor caused this injury to be a temporary total disability. It is implicit in the standard that absence from work for the purpose of treatment of an injury constitutes disability, and the Committee on Interpretations believed that consultation by a specialist should be considered as part of the medical treatment for this case. Therefore, the absence from work for this examination should be considered as time lost because of the injury.

CASE 798 (5.1)

An automotive mechanic suffered a hernia while lifting a heavy piece of equipment from the floor to a workbench. He had had two previous hernias on the job, but this one did not produce feelings similar to those of the two previous ones, and he did not suspect a hernia. He did not cease work, but made a statement to his foreman the following day that he did not have enough help, and had hurt himself the day before because he had lifted too much weight by himself when a helper was not available.

The employee performed his regular duties and did not seem to experience any pain for ten days at the end of which time he made the request that he have medical attention. Medical attention was granted immediately, and the diagnosis was "left small inguinal hernia."

Decision: This hernia should not be included in the work injury rates on the basis that the man did not seek medical aid until several days later, and the case does not, therefore, meet the requirements of paragraph 5.1 (c).

CASE 799 (5.3)

During a supervisor's conference, a foreman complained of numbness in two fingers of his left hand. Two months later some muscle atrophy between the thumb and forefinger became evident. The employee stated that the numbness occurred after he had rested his elbow on the conference table. There was no on-the-job

act involved in this incident; the table and chairs were of usual height and construction.

A neuro-surgeon told the employee that due to past treatment for hyperthyroidism this nerve had become enlarged and inflamed. This in turn had caused the nerve to be more exposed at the elbow, and resting his elbow on the table had pressed the nerve which affected the two fingers. The neuro-surgeon performed a minor operation consisting of moving the exposed nerve from the elbow to the side of the arm, and this necessitated the employee's absence from the job for one day.

Decision: The disability should be included in the rates as work-connected, since it arose out of and in the course of employment. Because of the employee's hyperthyroidism and susceptibility to injury, the incident of resting his elbow on the table aggravated his pre-existing condition.

CASE 800 (1.6)

A groundman on a line crew brought a bottle of soda pop with his lunch. Shortly before noon he removed the bottle of pop from his lunch bucket and placed it in a snow bank to cool. The bottle exploded, and glass was blown into his face. He suffered cuts in the area of his eye, and was off the job for seven days.

Decision: This should not be considered a work injury because, although it occurred during the time of employment, it did not arise out of employment, and therefore should not be included in the work injury rates.

New International Recommendations . . .

ISO Recommendations are published by the International Organization for Standardization, and IEC Publications by the International Electrotechnical Commission, Geneva, Switzerland. Copies are available from ASA.

COMPOSITION OF 99.8 UNALLOYED MAGNESIUM INGOTS. *ISO R 114. July 1959. First edition.* ***$0.60.***

Gives definition and composition of ingots for general purposes. Special applications may require stricter limitation of certain specified and unspecified elements.

PLASTICS. DETERMINATION OF BOILING WATER ABSORPTION. *ISO R 117. August 1959. First edition.* ***$0.60.***

This method of test describes the conventional procedure for determining the weight of water absorbed by a molded test specimen or one machined to shape from sheet, rod, or tube, as a result of immersion in boiling water for a specified time and at a specified temperature. The method applies to all types of plastics, except those that soften at 100 C to the point where they lose their shape. The Recommendation was approved by 25 of the ISO member-bodies, including USA.

PLASTICS. DETERMINATION OF METHANOL-SOLUBLE MATTER IN POLYSTYRENE. *ISO R 118. August 1959. First edition.* ***$0.60.***

Describes the procedure for determining the amount of matter in unmodified polystyrene that is soluble in methanol by measuring the loss in weight of a sample of polystyrene on precipitation from solution with methanol. The American Standards Association holds the secretariat for the ISO/TC 61 project on plastics, and the USA was one of the 25 ISO member-bodies which approved the Recommendation.

PLASTICS. DETERMINATION OF FREE PHENOLS IN PHENOL-FORMALDEHYDE MOULDINGS. *ISO R 119. August 1959. First edition.* ***$0.60.***

Gives a semi-quantitative measure of the amount of free phenols in phenol-formaldehyde mouldings by determining the amount of iodine absorbed by a hot aqueous extract of a powdered moulding. This method is not intended as an absolute measure of free phenols present.

PLASTICS. DETERMINATION OF FREE AMMONIA AND AMMONIUM COMPOUNDS IN PHENOL-FORMALDEHYDE MOULDINGS. *ISO R 120. August 1959. First edition,* ***$0.60.***

Method of test to give a semi-quantitative measure of the amount of ammonia in phenol-formaldehyde mouldings by determining the ammonia content of the distillate from a hot aqueous extract of a powdered moulding. This method is not intended as an absolute measure of the ammonia present. Prepared by ISO/TC 61, Plastics, this Recommendation was approved by 23 ISO member-bodies, not including the USA.

COMPOSITION OF MAGNESIUM-ALUMINUM-ZINC ALLOY CASTINGS. *ISO R 121. August 1959. First edition.* ***$0.60.***

Specifies five chemical compositions, shown in three tables, of alloys of relatively high zinc content and those of relatively low zinc content. Twenty-two countries approved this recommendation; the USA, however, voted against adoption of R 121

COMPOSITION OF MAGNESIUM-ALUMINUM-ZINC ALLOY INGOTS FOR CASTING PURPOSES. *ISO R 122. August 1959. First edition.* ***$0.60.***

Contains one table showing the chemical composition of Mn-A1-Zn alloy ingots, in percent. This recommendation was approved by 22 countries, while the USA was opposed to the approval of this document.

RECOMMENDED GRAPHICAL SYMBOLS. PART 1: KIND OF CURRENT, DISTRIBUTION SYSTEMS, METHODS OF CONNECTION AND CIRCUIT ELEMENTS. *IEC Publication 117-1. 1960. First edition.* ***$2.40.***

Contains 93 graphical symbols agreed upon for international use in both heavy- and light-current electrical technology. The symbols are used in designating kind of current, distribution systems, methods of connecting windings, and elements of electric circuits. This publication replaces the former IEC Publications 35 and 42, dealing with graphical symbols for heavy- and light-current electrical engineering, respectively. When complete, Publication 117 will include symbols for all branches of electrical technology, but in order to avoid delay the publication is being issued in parts as they are approved.

. . . Questions

Are standards available that could be used as an aid in purchasing paper for the office?

No, there are no such standards. Attempts have been made in the project on Office Standards, X2, to develop standards for quality and dimensions of paper. Because the committee was not able to secure the cooperation of the paper manufacturers, however, all such attempts have failed.

Based on work started before the war, a number of international proposals and recommendations have been developed by the international committee, ISO/TC 6, without the participation of the USA.

At its meeting April 12, 1960, the Miscellaneous Standards Board approved a recommendation that the USA participate in ISO/TC 6. An advisory committee to handle the technical work has been organized and the first meeting has been held. The committee is made up of the Technical Association of the Paper and Pulp Industry (TAPPI), the Na-

tional Bureau of Standards, American Society for Testing Materials, U.S. Post Office, Department of the Navy, and Sectional Committee X2, Office Standards.

The ISO Recommendations on paper that have been approved and are now available are: Substances of Paper, ISO/R58-1958; Paper Vocabulary (first and second series of terms), ISO/R66-1958, and ISO/R123-1959; Width of Sheets of Paper, ISO/R101-1959.

Is there an American Standard covering indicators of surface finish?

Although American Standard B46.1-1955, Surface Roughness, Waviness, and Lay, provides standards for the physical specimens for gaging irregularities of surfaces of solid materials, it does not cover surface finish indicators. In addition to the standards concerning irregularities and physical specimens, the standard also concerns the characteristics of instrumentation for measuring roughness. An interpretation of the use of tracer instruments is given, with additional information, in an appendix.

Are standards available for brass tubular rivets used in automotive clutch and brake lining?

Standards for rivets for brake applications are covered in the SAE Handbook. Lengths are specified in 1/16 in. increments. Work is also under way in Sectional Committee B18, but the problem is still being considered by a subcommittee and drafts are not yet available.

Are there any American Standards for magnetic sound recording instruments?

The only American Standard on magnetic recording is the American Standard Requirements for Magnetic Recording Instruments for the Home—Wire Size, Speed, Spools (EIA REC-131-A), Z57.4-1959.

In addition, however, the following standards are available from the Electronic Industries Association, 11 West 42nd Street, New York 18, N. Y.:

Magnetic Recording Equipment Home Receiver Combination Sets, REC-133

Magnetic Recording Equipment, Conditions for Measurement and Definitions, REC-134

Magnetic Recording Equipment, Tape, for Home Use, RS-224.

STANDARDS FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Information about those standards not selected for listing in THE MAGAZINE OF STANDARDS may also be obtained from the ASA Library. Orders for these standards may be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. For the convenience of readers, the standards are listed under their general Universal Decimal Classification number. In ordering copies, please refer to the number following the title.

025 LIBRARY ADMINISTRATION

India (ISI)

Practice for layout of library catalog code IS: 1358-1959

Spain (IRATRA)

Universal decimal classification, Part 2—Religion. Theology. Unabridged edition UNE 50 002-2

Universal decimal classification, Part 3—Social science. Unabridged edition UNE 50 002-3

621.3 ELECTRICAL ENGINEERING

Australia (SAA)

Fluorescent lamp ballasts (pre-heat, switch-start circuits) C.322-1959

Austria (ÖNORM)

2 types of testing prongs ÖNORM E 1356

Aluminum and steel-aluminum-aldrey, and steel-aldrey wire ropes for overhead power lines ÖNORM E 4030

Overhead network: physical data on aluminum and aldrey alloy ropes ÖNORM E 4300

Oil-level gage for transformers ÖNORM E 4764

Three-phase oil transformer for overhead line distribution ÖNORM E 4750

Air conditioning of transformers ÖNORM E 4766

Oil draining outlet of transformers ÖNORM E 4765

Canada (CSA)

Essential requirements and minimum standards covering electrical equipment: Part 2, Canadian Electrical Code:

Definitions and general requirements C22.2 No. 0-1960

Construction and test of outlet boxes, conduit boxes, and fittings C22.2 No. 18-1960

Construction and test of cord sets and power-supply cords C22.2 No. 21-1960

Construction and test of thermoplastic-insulated wires and cables C22.2 No. 75-1960

Construction and test of room air conditioners C22.2 No. 117-1960

Alternating-current electricity meters C17-1960

Czechoslovakia (CSN)

Load-lifting electromagnet CSN 35 3650

Transformers, regulating, copper-winding CSN 35 1140

Mechanical joining of aluminum electric wiring CSN 37 0606

Smooth regulating choking coil CSN 35 1211

2 stds for synchronous machines CSN 35 0200/1

Overhead high-voltage line fittings CSN 34 8740

Methods of measurement on AM radio receivers CSN 36 7090

Highway tubular lamp poles CSN 34 8342

Rules for choosing instrument transformers of current CSN 35 1362

Storage batteries for motorcycles CSN 36 4316

Finland (SFS)

Suspension device for lighting fittings in conduit installations C.V.54

Spool insulators for low voltage C.VI.9

2 stds for pin insulators for low-voltage overhead lines C.VI.11/12

3 stds for pin insulators for high-voltage overhead lines C.VI.13/15

France (AFNOR)

Electrical installation on railway rolling stock NF F 01-076

Conductors and cables, rubber-insulated, 250 and 750 v, for marine use, general NF J 71-100
8 stds for marine-type rubber-insulated wires and cables:
Series 750 MCP and MCPA NF J 71-101
Series 750 MCN and MCNA NF J 71-102
Series 750 MCTh and MCThA NF J 71-104
Series 250 MCP and MCPA NF J 71-111
Series 250 MCN and MCNA NF J 71-112
Series 250 MCT NF J 71-113
Series 250 MCTh and MCThA NF J 71-114
Conductors and cables varnish-fabric insulated, 750 v, general NF J 71-350
3 stds for marine-type, varnish-fabric insulated:
Series 750 MVP NF J 71-351
Series 750 MVTh NF J 71-352
Series 750 MVN NF J 71-353
Rigid conductors, vulcanized-rubber insulated NF C 32-102
Portable hand lamp NF C 61-710
Household electric refrigerators, safety rules for NF C 73-411

Germany (DNA)

Connection strip for electric line on motorcar trailers DIN 72577
Oil transformers with copper winding DIN 42503
2 types of thru-bushings for 10-30 kv lines DIN 48127/8
Cross-bars for overhead line poles up to 1 kv DIN 48174
Receptacle and plug for connecting trailer to motorcar DIN 72577
Locking electronic tube socket holder DIN 41558
Gages for checking alignment of bases of sub-miniature electronic tubes DIN 41553
Centrimetric wave diode and holder DIN 41861
Rubber-insulated cables NLH and NMH for power lines DIN 47709
Tie rope for roof overhead line mast DIN 48173
Wire binding clamps DIN 41000
TV tube, spherical, 70 degrees deflection reference line gage DIN 4154
Magnet system moving coil loudspeakers DIN 45578
Tubular joints for steel lighting poles DIN 49778
Roof pole for overhead power line under 1 kv DIN 48170
2 stds for television tubes, 90 degrees deflection, over-all dimensions DIN 41542
Electric trains. Classification. Terminology DIN 43101
Testing of insulating oils DIN 51554
Power and telecommunication installation plan DIN 40719
Flexible cord, silk insulated, paired conductors DIN 47403
5 stds for different plastic-insulated flexible cords DIN 47412-60/2
2 tables of cable cross-sections and respective conduit diameters DIN 49048/9
Inductive, non-compensated fluorescent lamp ballast DIN 49865
Electric bulbs, household use DIN 49810

India (ISI)

Code of practice for installation and maintenance of paper-insulated power cables (up to and including 33 kv) IS: 1255-1958
Porcelain insulators for telegraph and telephone lines IS: 283-1959
General requirements for electrical equipment of machine tools IS: 1356-1959
Lead-acid storage batteries (light duty) for motor vehicles IS: 395-1959

Ireland (IIRS)

Electric toasters IS 99:1960
Electric fires IS 101:1960

Japan (JISC)

Marine radio telephones in medium- and high-frequency bands JIS F 8621

Netherlands (NNI)

Electric machines (nomenclature) NEN 3124
Bituminous filling compound for power-current cable accessories NEN 3015

Pakistan (PSI)

Alternating-current fans. Ceiling, table, bracket, and pedestal PS: 1-1958

Spain (IRATRA)

Galvanized steel wires for the core of aluminum cable used in overhead electric lines UNE 21 005
Copper cables for overhead electric lines UNE 21 012
Aluminum cables for overhead electric lines UNE 21 015
Cables of bare copper wire for semi-rigid electric conductors UNE 21 017
Galvanized steel cable for grounding wire UNE 21 019
Rubber insulated cables for inside installations up to 750 v UNE 21 027

Turkey (TSE)

Solid hard-drawn copper wire TS 2
Twisted copper conductor TS 3
Insulated electric-wiring conduit "Peschel" TS 7
"Bergman" pipes and joints TS 8
Steel conduit for electric wiring TS 9

Union of South Africa (SABS)

Insulating oil for transformers and switchgear SABS 555-1959

United Kingdom (BSI)

Schedule of projector lamps BS 1522:1960
Rotating electrical machines for use in ships BS 2949:1960
Determination of resistivity of metallic electrical conductor material BS 3239:1960
Primary cells and batteries BS 397:1960
Safety requirements for medical treatment lamps BS 3232:1960
Polythene insulation and sheath of electric cables BS 3234:1960

USSR (GOST)

Frequency meters. Technical requirements GOST 7590-60
Phase-angle and power-factor meters. Technical requirements GOST 8039-60
Electrical measuring instruments. Supplementary interchangeable resistances. Technical requirements GOST 8623-60

621.791 WELDING AND ALLIED TECHNIQUES

Germany (DNA)

Pressure welding DIN 1911

India (ISI)

Code of practice for seam welding in mild steel IS: 1261-1959
Methods of chemical analysis of soft solder IS: 998-1959
Methods of chemical analysis of brazing solder IS: 999-1959
Code for practice for oxyacetylene welding for structural work in mild steel IS: 1323-1959
½-percent molybdenum steel covered electrodes for metal arc welding IS: 1395-1959

United Kingdom (BSI)

General recommendations for manual inert-gas tungsten-arc welding. Austenitic stainless and heat-resisting steels BS 3019: Part 2:1960

USSR (GOST)

Welding steel wire GOST 2246-60

678.5 PLASTICS

Austria (ÖRNORM)

Laminated decorative plastics ÖNORM C 9511

Germany (DNA)

Plastic-bonded and laminated paper and fabrics: types DIN 7735
Plastic-bonded and laminated paper and fabrics, testing of DIN 7736
Vulcanized fiber-laminated plastics, testing of DIN 7738
2 stds for tolerances and deviations on tools for plastic press-and-injection moldings DIN 16749
Cellulose acetate for injection molding DIN 7742
Tensile testing of plastic foils DIN 53371
Laminated plastics, vulcanized fibers DIN 7737

681.12 METERS. COUNTERS

Belgium (IBN)

Electrical meters and accessories NBN 133

Germany (DNA)

Mounting ring and measuring section for flow measurement DIN 19205

Switzerland (SNV)

4 stds for different types of oil-level indicators VSM 19301,5/7

News Briefs...

• AT CEREMONIES held in Washington in June, S. David Hoffman, lawyer, as well as electrical engineer on the staff of the American Standards Association, was admitted to practice before the Supreme Court of the United States. Mr Hoffman is secretary of ASA's Electrical Standards Board. He has been a member of the New York State Bar for five years.

• WORD has just been received that John A.C. Warner, for 30 years secretary and general manager of the Society of Automotive Engineers, retired from that office as of July 1. At the request of the SAE Board of Directors, he is continuing to serve the Society as an advisory consultant. SAE has been affiliated with ASA as a Member-Body almost since the organization of ASA's predecessor, the American Engineering Standards Committee. SAE joined AESC in 1920.

Succeeding Mr Warner, Joseph Gilbert has been appointed SAE secretary and general manager. He is the third to hold this post in the Society's 55-year history. Mr Gilbert has been assistant general manager since 1957, and has served as a member of the Society's headquarters staff for 14 years. As assistant general manager, Mr Gilbert has been in charge of the operations of the headquarters staff, and has assisted the officers and Board of Directors in carrying out many administrative policies.

Before joining the SAE staff in 1946, Mr Gilbert was an industrial engineering officer in the Air Force during World War II, with responsibilities in development of plant and manufacturing facilities for production of aircraft, engines, and components.

Mr Gilbert has a Master of Science degree in Industrial Engineering from Columbia University, and a Bachelor's degree in Engineering from the College of the City of New York.

Louis J. Lucas

• THE MOBILE HOMES Manufacturers Association, a Member-Body of the American Standards Association, has named Louis J. Lucas as its representative on the Standards Council. Mr Lucas, an engineer of 35 years experience, is director of the standards division of the Association. His division is working on standards pertaining to electrical, heating, and plumbing systems and their installation in mobile homes.

Mr Lucas is a Registered Professional Engineer. Before joining the Mobile Homes Manufacturers Association, he was a consulting management engineer.

The Mobile Homes Manufacturers Association is co-sponsor of the new project A119, Mobile Homes and Trailers.

• THE FOLLOWING letter will interest many U.S. readers. It is reprinted from the *BSI News* which had reprinted it from the British magazine *Business*. The *BSI News* is published by the British Standards Institution.

Those private specifications

"This company handles many subcontracts, for which we are given drawings and schedules, all at first sight clean and tidy. But when the job is being prepared for production we come up against 'private' standards which are being quoted increasingly for materials, finishes, processes, packing, etc.

"We welcome D.T.D. (Directorate Technical Developments) or B.S. Specifications, which are common property. But we object to having to translate 'Material Z. 1437/21 finished to 3798C.'

"Surely it is preferable for large manufacturers to support some national or international standardization body such as BSI, rather than spend vast sums producing, filing, and distributing their own peculiar specifications."

E. N. Hill,
Planning Engineer,
Fleming Radio (Developments),
Stevenage, Herts.

• SPINDLE NOSES covered by the revised 52-page edition of American Standard B5.9-1960 are for use on engine lathes, tool room lathes, turret lathes, and automatic lathes and may be used advantageously on other machines wherever chucks or fixtures must be mounted accurately and rigidly on revolving spindles.

This edition supersedes American Standard B5.9-1954. Tolerances for length of pilot and depth of pilot holes for the Type A-1 and B-1 spindles have been decreased slightly to reflect current actual practice in order to reduce the possibility of distorting the chuck or face plate when mounted on the spindle. For the same reason, pilot bore diameters for some sizes of these chucks, and corresponding gage dimensions, have been changed to reduce interference between chuck and spindle pilot diameters. In addition, the method of dimensioning radial hole locations has been changed to follow the practice set forth in Section 5 of American Standard Drafting Manual, Y14.5-1957, Dimensioning and Notes. All of

Join the Crowd

the changes from the last edition are box-outlined for the user's convenience.

Complete dimensions for each size and type of nose, as well as for mating backs of chucks, face plates, and fixtures, are given in the tables. Also given are dimensions of gages for checking the important dimensions on these spindle noses and the backs of chucks, face plates, and fixtures, to ensure interchangeability between parts made by different manufacturers.

The American Standard on spindle noses was developed and is kept up to date by Technical Committee 4 of ASA Sectional Committee B5, Standardization of Small Tools and Machine Tool Elements. Chairman of the subcommittee is Charles T. Blake, director of engineering, The Warner & Swasey Company, Cleveland.

Sectional Committee B5 is sponsored by the American Society of Tool and Manufacturing Engineers, Metal Cutting Tool Institute, Society of Automotive Engineers, National Machine Tool Builders' Association, and the American Society of Mechanical Engineers.

American Standard B5.9 was first published in 1936. It was revised in 1948 to include five sizes of Type L spindle noses, two smaller sizes of Types A, B, and D spindle noses, namely, the 2-inch and 3-inch, and a new spindle nose larger than the 20-inch for Types A and B, now known as the 28-inch nose.

The third edition, published in 1954, incorporated Unified screw Threads jointly agreed upon by the American Standards Association, the British Standards Institution, and the Canadian Standards Association.

American Standard Spindle Noses, B5.9-1960, is available at $2.50.

• THE KINDS of shelter to seek and those to be avoided when caught in the open by a thunderstorm are covered in a revised American Standard Code For Protection Against Lightning. Published by the National Fire Protection Association as NFPA No. 78, the three parts of the code have been approved as American Standards C5.1, C5.2, and C5.3-1959 by the American Standards Association. The three standards deal with the protection of persons, the protection of buildings and miscellaneous property, and the protection of structures containing flammable liquids and gases.

The purpose of American Standard C5.1 is to furnish a guide for personal safety during thunderstorms. The standard sets down rules for personal conduct and makes note of the choices of indoor shelters as well as what to avoid if one must remain outdoors during a thunderstorm.

The second section of the code, C5.2, protection of buildings and miscellaneous property, applies to the protection against lightning of buildings and other property, with the exception of property devoted to the production, storage, and transportation of flammable liquids and gases, explosives manufacturing buildings and magazines, electrical lines and equipment.

American Standard C5.2 also considers the factors necessary to determine the extent of providing lightning protection for specific cases. These factors are: (a) frequency and severity of thunderstorms; (b) value and nature of building and contents; (c) personal hazards; (d) local conditions; (e) indirect losses; (f) relation to insurance premiums.

The third and final section of the code, C5.3, applies to the protection of structures containing flammable liquids and gases from lightning or electric discharges. It applies particularly to structures containing alcohol, benzol, petroleum, petroleum products, turpentine, and other liquids which produce flammable air-vapor mixtures at atmospheric temperatures.

This code is concerned only with the prevention of fires or explosions from electric discharges and is not concerned with means of extinguishing fires when once started.

The Code for Protection Against Lightning, NFPA No. 78, American Standards C5.I, C5.2, and C5.3-1959 is available at 50 cents per copy from the American Standards Association.

• K.A. CRUISE, president of the Purchasing Agents' Association of Kansas City, author, and member of national committees on purchasing, now represents the National Association of Purchasing Agents on ASA's Standards Council. Mr Cruise is materials manager, Kansas City Division, Bendix Corporation. He is chairman of the NAPA Value Analysis-Standardization Committee, and is a member of the NAPA committees that are writing a booklet on "Purchasing as a Career" and developing a method of evaluating purchasing performance. He was a member of the NAPA committee for producing the film "Value Analysis-Standardization—The Open Door to Increased Profits."

K. A. Cruise

Mr Cruise has been active in spreading the knowledge of purchasing methods, having served as an instructor in the purchasing school sponsored by the Kansas City Purchasing Agents' Association and the Kansas University Extension Service, in special classes for purchasing agents at Michigan State University, and at Ohio State University where his class consisted of Air Force contracting officers and senior buyers.

at the NATIONAL CONFERENCE ON STANDARDS

Sheraton-Atlantic Hotel, New York, N.Y.

October 25-27, 1960

Sessions on Department of Defense, purchasing, building, quality control, how standards help management, presentation of Howard Coonley Medal and Standards Medal.

AMERICAN STANDARDS

Just Published . . .

If your company is a member of the American Standards Association, it is entitled to receive membership service copies of these newly published American Standards. The ASA contact in your company receives a bimonthly announcement of new American Standards, which also serves as an order form. Find out who your ASA contact is and order your American Standards through him. He will make sure your company receives the service to which it is entitled.

CINEMATOGRAPHY

Theater Sound Test Film for 35mm Motion-Picture Sound Reproducing Systems, PH22.60-1959 [Revision of PH22.60-1948 (R1953)] $0.35

Describes a film for qualitatively checking and adjusting 35mm motion-picture sound reproducers and for judging the acoustical properties of the auditorium in which the sound is reproduced.

Sponsor: Society of Motion Picture and Television Engineers

MECHANICAL

Milling Cutters, Nomenclature, Principal Dimensions, B5.3-1960 (Revision and unification of B5.3-1950 and B5c1-1947) $3.00

Establishes definitions, nomenclature, principal dimensions, and tolerances for milling cutters and mounting elements.

Sponsors: American Society of Tool and Manufacturing Engineers; Metal Cutting Tool Institute; Society of Automotive Engineers; National Machine Tool Builders' Association; American Society of Mechanical Engineers

Ball and Roller Bearings, Identification Code for, B54.1-1960 $4.00

Identifies and describes each bearing on the basis of dimensional and functional interchangeability.

Sponsor: Anti-Friction Bearing Manufacturers Association

METALLIC COATINGS

Zinc (Hot Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip, Specifications for, ASTM A 123-59; ASA G8.1-1960 (Revision of ASTM A 123-53; ASA G8.1-1956) $0.30

Covers protective zinc coatings; procedure to follow in obtaining samples for chemical analysis; prevention of steel embrittlement; weight of coating; selection of test specimens; and testing of finish and adherence of coating.

Zinc Coating (Hot Dip) on Iron and Steel Hardware, Specifications for, ASTM A 153-59; ASA G8.14-1960 (Revision of ASTM A 153-53; ASA G8.14-1956) $0.30

Requirements for weight of zinc coating on iron and steel hardware. Gives tests for weight of coating and determination of proper distribution of coating and adherence.

Sponsor: American Society for Testing Materials

OFFICE EQUIPMENT

Office-Type Dictating Equipment, Minimum Requirements for, X2.5.20-1960 $0.35

Covers essential characteristics and basic forms of office-type dictating equipment.

PETROLEUM PRODUCTS AND LUBRICANTS

Method of Test for Knock Characteristics of Motor Fuels by the Motor Method, ASTM D 357-59; ASA Z11.-37-1960 (Revision of ASTM D 357-58; ASA Z11.37-1958) $0.30

Apparatus and procedure for determination of knock characteristics of motor fuels below 100 octane number, in terms of motor octane numbers, and of fuels for use in spark-ignition engines.

Method of Test for Knock Characteristics of Motor Fuels by the Research Method, ASTM D 908-59; ASA Z11.-69-1960 (Revision of ASTM D 908-58; ASA Z11.69-1958) $0.30

Apparatus, procedure, and report for determining knock characteristics in terms of research octane numbers of fuels for use in spark-ignition engines.

Mercaptan Sulfur in Jet Fuels, Method of Test for, (Amperometric Method), ASTM D 1323-56; ASA Z11.105-1960 $0.30

Apparatus and procedure for determination of mercaptan sulfur in jet fuels containing from 0.001 to 0.01 percent by weight of mercaptan sulfur. Organic sulfur compounds such as sulfides, disulfides, and thiophene do not interfere.

Sponsor: American Society for Testing Materials

RUBBER

Sample Preparation for Physical Testing of Rubber Products, Methods of, ASTM D 15-59T; ASA J1.1-1960 (Revision of ASTM D 15-58T; ASA J1.1-1959) $0.30

Covers procedures for compounding and mixing of certain basic standard rubber compound formulations. Lists standard ingredients for styrene-butadiene rubber compounds, and formulas for natural rubber compounds.

Contains tables for time cycle for mixing compounds.

Sponsor: American Society for Testing Materials

TEXTILES

Glass Yarns, Methods of Testing and Tolerances for, ASTM D 578-58; ASA L14.36-1960 (Revision of L14.36-1951, 2nd ed.) $0.30

Applies to continuous filament and staple glass yarns, both single and plied, and both single and multiple wound.

Spun, Twisted, or Braided Products Made from Flax, Hemp, Ramie, or Mixtures thereof, Methods of Testing and Tolerances for, ASTM D 739-58; ASA L14.46-1960 (Revision of L14.46-1953) $0.30

Applies to materials having breaking strengths up to 1200 lb. Products sold as "rope" may be tested on machines described in these methods.

Tex Systems to Designate Linear Density of Fibers, Yarn Intermediates, Yarns, and Other Textile Materials, Recommended Practice for Use of, ASTM D 861-58T; ASA L14.48-1960 (Revision of L14.48-1953) $0.30

Based on a direct, decimalized system employing metric units and multiples or submultiples when desired.

Average Fiber Diameter of Wool Tops, Card Silver, and Scoured Wool by Micronaire Method, Methods of Test for, ASTM D 1282-57T; ASA L14.104-1960 $0.30

Applicable only to clean wool and wool tops free of vegetable matter and medullated fibers.

Alkali-Solubility of Wool, Method of Test for, ASTM D 1283-57; ASA L14.105-1960 $0.30

Applicable to wool in original fiber form or as fiber obtained from yarn or from woven or non-woven fabric. Indicates damage to wool resulting from chemical treatments.

Sponsors: American Association of Textile Chemists and Colorists; American Society for Testing Materials

Performance Requirements for Textile Fabrics, L22, (Volume 1)

Part I—Women's and Girls' Textile Fabrics, L22.10.1-1960 through L22.10.38-1960

Part II—Men's and Boys' Textile Fabrics, L22.20.1-1960 through L22.20.22-1960

Part III—Home Furnishing Textile Fabrics, L22.30.1-1960 through L22.30.15-1960

Part IV—Performance Requirements for Special Characteristics and Finishes, L22.40.1-1960

Part V—Permanent Labels, Detachable Tags and Certification of Fabrics or Products, L22.50.1-1960

Part VI—Definitions of Terms, L22.60.1-1960 $4.00

Test Methods To Be Used with the L22 Standards (Volume II) $2.50

Performance requirements and test methods for 75 different classes of fabrics, determined by the purpose for which the fabrics are used.

Sponsor: National Retail Merchants Association

WOOD

Creosoted End-Grain Wood Block Flooring for Interior Use, Specifications for, ASTM D 1031-59; ASA O10.1-1960 (Revision of ASTM D 1031-55; ASA O10.1-1958) $0.30

Specifications covering material and recommended practice for installation.

Sponsor: American Society for Test-Materials

In Process . . .

As of June 20, 1960

Standards Council gives final approval to American Standards. Board of Review acts for Standards Council (takes about 2 weeks). Standards Board approves standards to send to Board of Review or Standards Council (takes about 4 weeks).

ACOUSTICS, VIBRATION, AND MECHANICAL SHOCK

In Standards Board

Electro-Acoustical Characteristics of Hearing Aids, Methods for Measurement, S3.3- (Revision of Z24.14-1953)

Sponsor: Acoustical Society of America

BUILDING AND CONSTRUCTION

American Standard Approved

Fire Tests of Door Assemblies, Methods of, ASTM E 152-58; NFPA No. 252; ASA A2.2-1960 (Revision of ASTM E 152-55T; ASA A2.2-1956)

Sponsors: National Bureau of Standards; National Fire Protection Association; American Society for Testing Materials

In Board of Review

Polysulfide Base Sealing Compounds for the Building Trade, Specification for, A116.1-

CINEMATOGRAPHY

In Standards Board

Transmission Density of Motion-Picture Films, Method of Determining, PH22.27- (Revision of PH22.27-1947)

Reel Spindles for 16mm Motion-Picture Projectors, PH22.50- (Revision of PH22.50-1946)

9-kc Sound Focusing Test Film for 35mm Motion-Picture Sound Reproducers, PH22.62- (Revision of PH22.62-1948)

1000-Cycle Balancing Test Film for 35mm Motion-Picture Sound Reproducers, PH22.67- (Revision of PH22.67-1948)

Sponsor: Society of Motion Picture and Television Engineers

DRAWINGS, SYMBOLS AND ABBREVIATIONS

American Standard Approved

American Standard Drafting Manual, Section 15—Electrical Diagrams, Y14.15-1960

Sponsors: American Society of Mechanical Engineers; American Society for Engineering Education

ELECTRIC AND ELECTRONIC

In Board of Review

Aluminum Conduit, Specification for, C80.5-

Sponsors: American Iron and Steel Institute; National Electrical Manufacturers Association

GAS-BURNING APPLIANCES

American Standards Approved

Addenda Z21.10.1a-1960 to American Standard Approval Requirements for Gas Water Heaters, Volume I, Z21.10.1-1959

Addenda Z21.13.2b-1960 to American Standard Approval Requirements for Central Heating Gas Appliances, Volume II, Gravity and Forced Air Central Furnaces, Z21.13.2-1958 and Addenda Z21.13.2a-1959

Addenda Z21.22a-1960 to American Standard Listing Requirements for Relief Valves and Automatic Gas Shut-Off Devices for Hot Water Supply Systems, Z21.22-1958

Sponsor: American Gas Association

In Board of Review

Addenda Z21.1.1a to American Standard Approval Requirements for Domestic Gas Ranges, Volume I, Free Standing Units, Z21.1.1-1959

Addenda Z21.1.2a to American Standard Approval Requirements for Domestic Gas Ranges, Volume II, Built-In Domestic Cooking Units, Z21.1.2-1959

Approval Requirements for Hotel and Restaurant Gas Ranges and Unit Broilers, Z21.3- (Revision of Z21.3-1956, Z21.3a-1957, Z21.3b-1959)

Addenda Z21.5a to American Standard Approval Requirements for Domestic Gas Clothes Dryers, Z21.5-1959

Approval Requirements for Domestic Gas-Fired Incinerators, Z21.6- (Revision of Z21.6-1957, Z21.6a-1958, Z21.6b-1959)

Approval Requirements for Gas Water Heaters, Z21.10.1- (Revision of Z21.10.1-1959, Volume I)

Addenda Z21.10.2a to American Standard Approval Requirements for Gas Water Heaters, Volume II, Side-Arm Type Water Heaters, Z21.10.2-1959

Approval Requirements for Gas Water Heaters, Volume III, Circulating Tank, Instantaneous and Large Automatic Storage Type Water Heaters, Z21.10.3-

Addenda Z21.11a to American Standard Approval Requirements for Gas-Fired Room Heaters, Z21.11-1959

Addenda Z21.13.1b to American Standard Approval Requirements for Central Heating Gas Appliances, Volume I, Steam and Hot Water Boilers, Z21.13.1-1958, Z21.13.1a-1959

Addenda Z21.13.4b to American Standard Approval Requirements for Central Heating Gas Appliances, Volume IV, Gravity and Fan Type Vented Recessed Heaters, Z21.13.4-1958, Z21.13.4a-1959

Addenda Z21.15b to American Standard Listing Requirements for Manually Operated Gas Valves, Z21.15-1958, Z21.15a-1959

Approval Requirements for Gas Unit Heaters, Z21.16- (Revision of Z21.16-1957, Z21.16a-1958, Z21.16b-1959)

Addenda Z21.17b to American Standard Listing Requirements for Domestic Gas Conversion Burners, Z21.17-1958, Z21.17a-1959

Approval Requirements for Refrigerators Using Gas Fuel, Z21.19- (Revision of Z21.19-1941)

Listing Requirements for Metal Connectors for Gas Appliances, Z21.24- (Revision of Z21.24-1955, Z21.24a-1956, Z21.24b-1959)

Addenda Z21.27a to American Standard Approval Requirement for Hotel and Restaurant Gas Deep Fat Fryers, Z21.27-1959

Approval Requirements for Portable Gas Baking and Roasting Ovens, Z21.28- (Revision of Z21.28-1956, Z21.28a-1957, Z21.28b-1959)

Approval Requirements for Gas Counter Appliances, Z21.31- (Revision of Z21.31-1956, Z21.31a-1957, Z21.31b-1959)

Addenda Z21.34b to American Standard Approval Requirements for Gas-Fired Duct Furnaces, Z21.34-1958, Z21.34a-1959

Addenda Z21.40a to American Standard Approval Requirements for Gas-Fired Absorption Summer Air Conditioning Appliances, Z21.40-1959

Sponsor: American Gas Association

In Standards Board

Approval Requirements for Central Heating Gas Appliances, Volume II, Gravity and Forced Air Central Furnaces, Z21.13.2- (Revision of Z21.13.2-1958, Z21.13.2a-1959, Z21.13.2b-Proposed)

Sponsor: American Gas Association

MATERIALS AND TESTING

American Standards Approved

Quicklime for Structural Purposes, Specification for, ASTM C 5-59; ASA K67.1-1960

Normal Finishing Hydrated Lime, Specification for, ASTM C 6-49; ASA K67.2-1960

Chemical Analysis of Limestone, Quicklime, and Hydrated Lime, Methods of, ASTM C 25-58; ASA K67.3-1960

Quicklime and Hydrated Lime for Cooking of Rags in Paper Manufacture, Specification for, ASTM C 46-27; ASA K67.4-1960

Quicklime for Sulfite Pulp Manufacture, Specification for, ASTM C 46-27; ASA K67.5-1960

Quicklime and Hydrated Lime for Silica Brick Manufacture, Specification for, ASTM C 49-57; ASA K67.6-1960

Sampling, Inspection, Packing and Marking of Lime and Limestone Products, Methods of, ASTM C 50-57; ASA K67.7-1960

Definitions of Terms Relating to Lime, ASTM C 51-47; ASA K67.8-1960

Quicklime and Hydrated Lime for Water Treatment, Specification for, ASTM C 53-52T; ASA K67.9-1960

Physical Testing of Quicklime and Hydrated Lime, Methods of, ASTM C 110-58; ASA K67.10-1960

Hydraulic Hydrated Lime for Structural Purposes, Specification for, ASTM C 141-55; ASA K67.11-1960

Special Finishing Hydrated Lime, Specification for, ASTM C 206-49; ASA K67.12-1960

Hydrated Lime for Masonry Purposes, Specification for, ASTM C 207-49; ASA K67.13-1960

Quicklime for Calcium Carbide Manufacture, Specification for, ASTM C 258-52; ASA K67.14-1960

Hydrated Lime for Grease Manufacture, Specification for, ASTM C 259-52; ASA K67.15-1960

Fly Ash for Use as a Pozzolanic Material with Lime, Specification for, ASTM C 379-56T; ASA K67.16-1960

Quicklime and Hydrated Lime for Neutralization of Waste Acid, Methods of Testing, ASTM C 400-57T; ASA K67.17-1960

Quicklime and Hydrated Lime for Sand-Lime Products, Specification for, ASTM C 415-58T; ASA K67.18-1960

Pozzolans for Use with Lime, Specification for, ASTM C 432-59T; ASA K67.19-1960

Quicklime and Hydrated Lime for Hypochlorite Bleach Manufacture, Specification for, ASTM C 433-59T; ASA K67.20-1960

Sponsor: American Society for Testing Materials

MECHANICAL

American Standards Approved

Involute Splines, Serrations, and Inspection, B5.15-1960 (Revision of B5.15-1950; B5.26-1950; B5.31-1953)

Spindle Noses and Arbors for Milling Machines, B5.18-1960 (Revision of B5.18-1953)

Sponsors: American Society of Tool and Manufacturing Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Mechanical Engineers

In Standards Board

Ball and Roller Bearings and Their Parts, Terminoloy and Definition, B3.7-

Bearing Mounting Accessories, Specifications for, B3.9- (Revision of B3.9-1951)

Sponsor: Anti-Friction Bearing Manufacturers Association

American Standard Reaffirmed

Leaf Chain, B29.8-1958 (R1960)

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

MINING

In Standards Board

Rock Dusting Underground Bituminous Coal and Lignite Mines to Prevent Coal Dust Explosions, M13.1- (Revision of M13-1925)

Sponsor: Bureau of Mines

NUCLEAR ENERGY

In Standards Board

Radiation Protection in Uranium Mines and Mills (Concentrators), N7.1-

Sponsors: Atomic Industrial Forum; National Safety Council

PIPE AND FITTINGS

American Standards Approved

Pressure Temperature Ratings for Flanges Made of Aluminum Alloys, B16.5c-1960 (Addendum to B16.5-1957, Steel Pipe Flanges and Flanged Fittings)

Sponsors: American Society of Mechanical Engineers; Manufacturers Standardization Society of the Valve and Fittings Industry; Mechanical Contractors Association of America

Seamless Steel Boiler Tubes for High-Pressure Service, Specifications for, ASTM A 192-58T; ASA B36.14-1960 (Revision of ASTM A 192-55T; ASA B36.14-1956)

Electric-Resistance-Welded Steel Boiler and Superheater Tubes for High-Pressure Service, Specifications for, ASTM A 226-58T; ASA B36.18-1960 (Revision of ASTM A 226-55T; ASA B36.18-1956)

Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses, Specifications for, ASTM A 120-57T; ASA B36.20-1960 (Revision of ASTM A 120-54; ASA B36.20-1958)

Copper-Brazed Steel Tubing, Specifications for, ASTM A 254-58; ASA B36.35-1960 (Revision of ASTM A 254-55T; ASA B36.35-1956)

Seamless and Welded Ferritic Stainless Steel Tubing for General Service, Specifications for, ASTM A 268-58; ASA B36.36-1960 (Revision of ASTM A 268-55; ASA B36.36-1956)

Seamless and Welded Austenitic Stainless Steel Sanitary Tubing, Specifications for, ASTM A 270-58; ASA B36.38-1960 (Revision of ASTM A 270-55; ASA B36.38-1956)

Sponsors: American Society for Testing Materials; American Society of Mechanical Engineers

In Board of Review

Dryseal Pipe Threads, B2.2- (Partial revision of B2.1-1945, Pipe Threads)

Sponsors: American Society of Mechanical Engineers; American Gas Association

In Standards Board

Addendum B31.1a to American Standard Code for Pressure Piping, B31.1-1955

Addendum B31.3a to American Standard Petroleum Refinery Piping, B31.3-1959

Addendum B31.4a to American Standard Oil Transportation Piping, B31.4-1959

Addendum B31.8a to American Standard Gas Transmission and Distribution Systems, B31.8-1958

Sponsor: American Society of Mechanical Engineers

SAFETY

American Standards Approved

Power Lawn Mowers, Safety Specifications for, B71.1-1960

Sponsor: Lawn Mower Institute

Fundamentals Governing the Design and Operation of Local Exhaust Systems, Z9.2-1960

Sponsors: American Society of Heating, Refrigerating and Air-Conditioning Engineers; American Industrial Hygiene Association; Air Moving and Conditioning Association

In Board of Review

Practice for the Inspection of Elevators (Inspectors' Manual), A17.2- (Revision of A17.2-1945)

Sponsors: American Society of Mechanical Engineers; American Institute of Architects; National Bureau of Standards

NEWS ABOUT AMERICAN STANDARDS PROJECTS

Mobile Homes and Travel Trailers, A119—

Sponsors: Mobile Homes Manufacturers Association; Trailer Coach Association

At the organization meeting of this new committee, held April 29, the scope of the work was recommended as "To develop minimum standards for the installation of plumbing, heat producing, and electrical systems and equipment, in mobile homes and travel trailers, to protect health and assure safety."

Three subcommittees were set up and chairmen appointed: Plumbing, Vince Manas, American Society of Mechanical Engineers, chairman; Heating, Pieter Root, Jr, American Gas Association, chairman; Electrical, H.H. Watson, National Electrical Manufacturers Association, chairman.

T.E. Veltfort, managing director, Copper and Brass Research Association, and chairman of ASA's Standards Council, has accepted the chairmanship of the sectional committee. Louis Lucas, director, Standards Division, Mobile Homes Manufacturers Association, is secretary.

The purpose of the committee's work will be to correlate existing standards pertaining to mobile homes and travel trailers into a single American Standard.

Robert M. Peters

Accident Prevention Signs, Z35—

Sponsor: National Safety Council

Robert M. Peters, structural development engineer for Aluminum Company of America's sales development division at New Kensington, Pa., was recently named vice-chairman of this committee. Leonard Hagerup is chairman (see article on page 231), and J.E. Croushore is secretary.

Mr Peters, who joined Alcoa in August, 1948, developed the extruded sign panel concept. Today this is the accepted standard for all turnpike informational signs.

Code for Pressure Piping, B31 —

Sponsor: American Society of Mechanical Engineers

Interpretation submitted by the sponsor.

From time to time actions taken by Sectional Committee B31 are published for the information of all who are interested in use of the American Standard Code for Pressure Piping, B31.1-1955. While these actions do not constitute formal revision of the code, they may be utilized in specifications, or otherwise, as representing the considered opinion of the committee.

Pending revision of the code for Pressure Piping, the sectional committee has recommended that ASME, as sponsor, and the American Standards Association publish selected interpretations so that industry may take immediate advantage of corresponding proposed revisions. Cases No. 46 and 47 are published herewith as interim actions of Committee B31 that will not constitute a part of the code until formal action has been taken by ASME and ASA.

CASE 46

Inquiry: ASTM Specification A155 does not list plate made to ASTM A299. May pipe made to Specification A155 using plate meeting the requirements of ASTM A299 be used under Section 1 of ASA B31.1, Code for Pressure Piping?

Reply: It is the opinion of the committee that pipe made to ASTM Specification A155 using firebox quality carbon-manganese-silicon steel plate conforming to ASTM Specification A299 may be used for power piping systems complying with the Code for Pressure Piping, American Standard B31.1-1955, Section 1, Power Piping, provided the following requirements are met:

(a) Pipe shall be Class 1, heat treated, double welded, and radiographed.

(b) Longitudinal joint factor may be taken as 1.0.

(c) Allowable stress values (E-1.0) shall be as follows:

−20 F to	650 F	18,750 psi
	700 F	17,700 psi
	750 F	15,650 psi
	800 F	12,000 psi
	850 F	7,800 psi

CASE 47

Inquiry: Is the limitation placed on ASTM A381 pipe in Subparagraph 305.2.1 (d) of American Standard B31.3-1959, Petroleum Refinery Piping, still applicable in view of the increased knowledge available to the committee?

Reply: It is the opinion of the committee that for American Standard B31.3-1959, Petroleum Refinery Piping, the intent of the code will be met if ASTM A381 pipe is used without the limitation contained in Subparagraph 305.2.1 (d).

Use of the Decimalized Inch, B87—

A new project to prepare American Standards for the use of the decimal inch throughout U.S. industry has just been initiated by the American Standards Association. The American Society of Tool and Manufacturing Engineers, which requested the project, has been invited to accept sponsorship. The scope will be "To define the Decimalized Inch and to present preferred system(s) and interpretations for its application in various types of industries."

The new project grew out of a request from Roy P. Trowbridge, General Motors Corporation, to the chairman of Sectional Committee B5, Small Tools and Machine Tool Elements, that decimal dimensioning be used in all standards developed by Sectional Committee B5. The suggestion for broader use of the system was presented to the Standards Council at its meeting in December 1959, and referred to the Mechanical Standards Board for study and further action.

"It is necessary to provide scientists and engineers with the best possible measuring sticks to keep America as a leader in industry," said the American Society of Tool and Manufacturing Engineers in its letter requesting the new project. ASTME called attention to the number of industries in the country that already have adopted the decimalized inch and to the fact that the American Standard Drafting Manual, Dimensioning and Notes, Y14.5-1957, recognized the decimalization of the inch as a national practice.

The swing to decimal dimensioning was started in the late 20's or early 30's by the Ford Motor Company, explained Roy Trowbridge in his letter to the Committee B5 chairman. Decimal dimensioning has, by now, become standard practice for the bulk of product design work in the mechanical manufacturing industry, he declared. "I am convinced that one of the best ways the U.S. can convince countries who are strongly metric minded that there is no onus attached to the inch is to swing as rapidly as possible to decimalized inch dimensions," he said.

In explaining the major points of decimal dimensioning, Mr Trowbridge pointed out that the decimal equivalent of 5/64 of an inch is .078125. This would be put on a drawing rounded off to .078. In the past, he said, drawings would have carried a bilateral tolerance of ±.010. This gives a range of .020. If you forget that the figure .078 originated as the decimal equivalent of a fraction, and consider instead the .010, you will find it possible to get along with .08, he explained. This .08 dimension could have a tolerance of .01. If the tendency is toward limit dimensioning, the lower limit might be set at .08 and the high limit at .10. If it is desirable to make the dimension a little smaller, the lower limit might be set at .06 and the high limit at .08. Or the dimension might be bracketed, making the low limit .07 and the high limit .09. The number of decimal places shown in a dimension indicates to the person reading the drawing how tight a tolerance is required. The decimal system can be adjusted in accordance with the needs of any particular industry, Mr Trowbridge declared.

It was pointed out during the discussion at the meeting of the Mechanical Standards Board which considered the ASTME request for the project, that the new B87 committee would be expected to investigate the development of a complete system of decimal dimensioning.

Reactor Safety Standards, N6—

Sponsors: American Nuclear Society; American Society of Mechanical Engineers

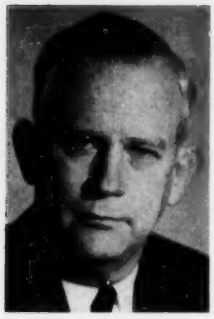
"The Steering Committee of Sectional Committee N6 has recently taken steps in cooperation with the American Nuclear Society, The American Society of Mechanical Engineers, and the American Institute of Electrical Engineers to eliminate duplication of effort among the groups which generate nuclear safety standards and to initiate the generation of standards for which no group has responsibility at present," reports

Miles C. Leverett

M.C. Leverett, chairman of the committee. "The redirection of effort which has resulted from meetings held on these subjects will serve the needs of the nuclear industry more efficiently in the future," he says. "In addition, the Steering Committee has undertaken a study of existing reactor sites which is expected to result in a recommendation by N6 for criteria to be used in selection of reactor sites."

Mr Leverett is manager of the Development Laboratories, Aircraft

H. Etherington



R. A. Bowman

Nuclear Propulsion Department, General Electric Company. As head of the U.S. delegation at the recent meeting of Subcommittee 3 of the International Organization for Standardization's Technical Committee 85 on Nuclear Energy, he presented the N6 committee's recommendations for international consideration.

Mr Leverett has special qualifications for the chairmanship of the N6 committee. He was one of the group which worked at the University of Chicago on the first atomic bomb project and which did the initial design for the Hanford reactors. Later, he was transferred to Oak Ridge where he was in charge of engineering work on the materials testing reactor. After the war he became technical director of the nuclear aircraft propulsion project which the Fairchild Engine and Airplane Corporation had handled at Oak Ridge and which it continued following the war. When this project was taken over by the General Electric Company, he continued in charge.

Mr Leverett is president of the American Nuclear Society. He holds several nuclear energy patents, has written many articles, and is a member of a number of editorial boards for nuclear engineering publications.

Harold Etherington, one of the two N6 vice-chairmen, is manager of the Nuclear Power Department, Atomic Energy Division, Allis-Chalmers Manufacturing Company, Washington, D.C. From 1948-1953, he was director of the Naval Reactor and Reactor Engineering Divisions of the Argonne National Laboratory. Before moving to his present position, he served as vice-president of the Nuclear Products-Erco Division of ACF Industries. He is author of *Modern Furnace Technology*, published in England, and editor of the *Nuclear Engineering Handbook*, McGraw-Hill, New York. Mr Etherington is a Fellow of the American Nuclear Society, and member of ASME and the American Society for Metals.

Robert A. Bowman, vice-president in the Power and Industrial Division of Bechtel Corporation, with headquarters in San Francisco, is also co-vice-chairman of N6. He is associated with the Division's interests in engineering nuclear and steam electric generating plants and metallurgical plants. Mr Bowman served with the Westinghouse Electric Corporation for 22 years and became manager of engineering, Atomic Power Division. In this capacity, he was responsible for engineering in connection with the design of the propulsion plant for the pioneer atomic submarine, *Nautilus*.

Mr Bowman is a member of the executive committee of ASME's Nuclear Engineering Division and a past chairman of the San Francisco Section of ASME. He is a member of the American Institute of Electrical Engineers and the American Nuclear Society.

Philip H. Wilks

Phillip H. Wilks, secretary of Sectional Committee N6, is with the Aircraft Nuclear Propulsion Department, General Electric Company, Cincinnati, Ohio. A graduate chemical engineer with an M.S. from Northwestern University, he has been with GE since 1957. He is a member of the American Nuclear Society.

Marking of Compressed Gas Cylinders to Identify Content, Z48 —

Sponsor: Compressed Gas Association

L.G. Matthews, secretary of the International Acetylene Association, has been named chairman of Sectional Committee Z48. A member of the National Fire Protection Association Committee on Gases and secretary of the NFPA Committee on Cutting and Welding Practices, Mr Matthews is also a past chairman of the Compressed Gas Association's Safety Committee and also of the Atmospheric Gases and Hydrogen Committee. He is also a member of Sectional Committees A13, Scheme for the Identification of Piping Systems; B19, Safety Standards for Compressor Systems, and Z49, Safety in Electric and Gas Welding and Cutting Operations. Mr Matthews is a member of technical societies in the safety and chemical fields, and an honorary member of the British Acetylene Association.

L. G. Matthews

At present, he reports, American Standard Z48.1-1954, Method for Marking Portable Compressed Gas Containers to Identify the Material Contained, is up to date and no immediate future committee work is planned.

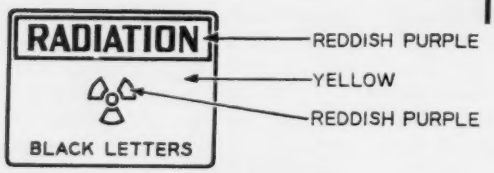
Throw-Away Carbide Inserts for Cutting Tools, B80.1-1959 —

After consideration of whether a sectional committee should be set up to take care of future revisions of this standard, the Mechanical Standards Board has now voted to assign proprietary sponsorship to the Cemented Carbide Producers Association. The 1959 edition of the standard was submitted to ASA by the Association for approval as American Standard under the Existing Standards Method.

HELP CUT ACCIDENT COSTS

with

AMERICAN STANDARD SAFETY SIGNS



These quickly recognized standard signs give your safety message instant impact

Compare your signs with

American Standard Specifications for Industrial Accident Prevention Signs

Z35.1-1959 **Revision of Z35.1941** **$1.35**

Sponsored by the National Safety Council

Specific recommendations on design features, proportions, colors, wording, and lettering for

- Danger Signs
- Caution Signs
- Safety Instruction Signs
- Directional Signs
- Informational Signs

Special information on construction, materials, and finishes is included in Appendix A for signs of different materials—aluminum, glass, fiber, pasteboard, cloth, paper, plastic, steel, wood—for electric signs, reflecting signs, and for decalcomania and painted wall signs. Recommendations on where to place the signs, and how to keep them in good condition are included in Appendix B.

ACCIDENTS ARE COSTLY. THEY CAN BE PREVENTED

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